The Iron Age

A Review of the Hardware and Metal Trades.

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A Stove Plate Dressing Machine.

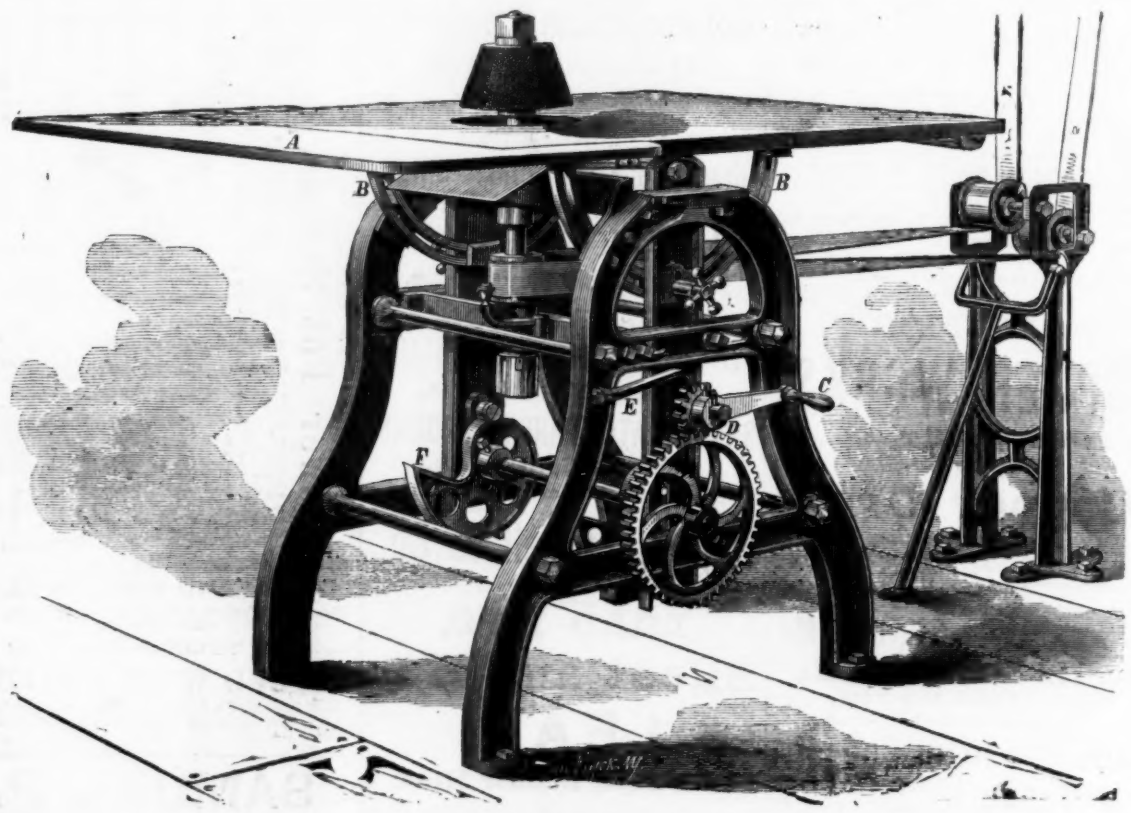
The Northampton Emery Wheel Company, of Leeds, Mass., have applied for a patent on the machine shown in the accomyanying illustration. It is designed to obviate a large amount of work upon stove castings now performed by hand labor, with the cold chisel and file. A well made stove should have every joint nearly perfect, the doors so nicely adjusted that a strip of tissue paper inserted at any point cannot, when the door is shut, be withdrawn, and the edges of the holes smoothly ground over the entire surface. It has also become the practice lately, to give a fine polish to the outside edges of the tops and bottoms. It is hardly necessary to point out that all this extra work, when done by chipping with a cold chisel and smoothing with a half round file, necessitates not only an expenditure of tools but of time, rendering the operation obviously an expensive one.

The present device is so constructed that the castings may be at once adjusted in proper position and at any angle against a grinding wheel, which, acting against either their inner or outer edges, speedily removes irregularities and produces a nicely finished surface.

The operation consists in placing the work, after the gate is broken away, upon the table and setting the latter at the proper angle. This last is done by loosening the two hand nuts, which engage with the semi-circular braces, B B, as shown in our engraving. The stove top or other piece is then carried rapidly around with its interior edge in contact with the emery wheel, which renders the portions ground smooth and bright. For this work, solid emery wheels are exclusively used.

In order to polish the outside edges, an additional table, A, secured to the front of the main table, is used, and the stove top is laid bottom side up on a small form, made from inch board and having a hole for the pipe receiver. This form is placed on the table, and the work thereon brought in contact with the wheel, as already described. After the edges of the casting are roughed off, the solid wheel is removed, a covered one substituted, and the plate finely polished.

The vertical adjustment of the table, which allows of the work being brought against any desired point on the face of the wheel (so as to insure evenness of wear of the latter) is effected by turning the crank, C, which operates the cams, F, through the pinion, D, the whole being controlled and held in position by the dog, E. By using a shorter spindle and cup-shaped wheel, the machine may be advantageously employed for surface grinding.



STOVE PLATE DRESSING MACHINE.

The Early History of Iron Manufacture in Ohio.

The following extracts from a pamphlet by Col. Charles Whittlesey, of Cleveland, will be read with interest:

The enterprising settlers of the Western Reserve were the pioneers of the iron business in this State. Glendenin, Montgomery & Mackay, of Youngstown, built the first furnace in Ohio, at the mouth of Yellow Creek, on the Mahoning, in 1808, within ten years after the settlement of that region. Before that time all the castings and all the bar iron required on the Reserve were, like the grindstones, brought from great distances, at a heavy expense. Iron was almost a precious metal. This establishment was what is called among ironmasters a "pocket furnace," eight feet across the boshes, and about 30 feet high. It stood, like all the old furnaces, against a bluff, and was charged over a bridge built from the bank to the top of the stack. Its ruins are still visible a short distance below the Mt. Nebo mine. It was, of course, a charcoal furnace, with cold blast, driven by water-power, producing only a ton and a half to two tons per day. In 1809 James Heaton (Heaton was the son of Eaton), built a refining forge on Mousquito Creek, where is now the prosperous village of Niles, in Trumbull county, for the manufacture of bar iron with charcoal, from the pig of the Yellow Creek furnace, and which produced the first hammered bars of the State. The second furnace in the State was erected on Brush Creek, Adams county, near the Ohio River, in 1811. In 1812 James Heaton built a furnace at Niles. Daniel Eaton & Sons, in 1813, purchased the Yellow Creek furnace, and also built another on the same creek, at the falls, two or three miles above. Thirty years afterward the business of making iron with bituminous coal, in a raw state, in the United States, originated in this vicinity. The history of this great industry is worthy of attention. About 1816, Aaron Norton, of Middlebury, near Akron, put a charcoal furnace in blast, using a water-power half a mile above the village. In 1819, Asaph Whittlesey built a forge on the Little Cuyahoga, a mile and a half below Middlebury, where the present railways cross that stream.

The new business soon began to develop rapidly in the Lake Shore region. Along the northern slopes of the sand ridges, which lie near to and parallel with the shore, are frequent beds and bunches of bog iron ore, deposited from springs that issue from the ridges. It is a lean ore of about 25 per cent., but makes a soft and valuable metal, especially for castings. Most of it was run into stoves, kettles and other hollow ware for domestic uses. These establishments are now in ruins, and their localities have passed from the public rememberance. As most of their proprietors needed capital, and, however energetic they may have been, most of them were unfortunate in the results, I will do something to preserve their memories by inserting a condensed abstract of the owners and situations of the old charcoal furnaces of the Reserve. They were not then, as iron works are now, a pressage of personal wealth and position. With the pioneer iron men it was an experience of toil, perplexity and risk, that more often ended in pecuniary ruin.

Statement of the early cold blast furnaces and forges, of the Western Reserve, Ohio, with the date of erection, location, names of builders and owners, and when abandoned:

Erected.	Abandoned.
1808—Yellow Creek, Trumbull county, Mackay, Montgomery & Glendenin	
1809—Musquito Creek (forge), Niles, Trumbull county, James Heaton	1845
1812—Musquito Creek (furnace), Niles, Trumbull county, James Heaton	1857
1813—Yellow Creek Falls, Daniel Eaton & Sons	1833
1816—Middlebury, Portage county, Aaron Norton	1842
1819—Little Cuyahoga (forge), Asaph Whittlesey	1850
1824—Geauga Furnace, Painesville, Incorporate Company, in operation till recently.	
1825—Concord, Lake county, Incorporate Company, destroyed by fire.	
1835—Perry, Geauga county, Thorndyke & Drury	not known
1835—Madison, Lake county, Root & Wheeler	"
1832—Madison, Lake county, Clyde Co.	"
1832—Elyria, Lorain county, Herman Ely	1835
1832—Conneaut, not known	not known
1833—Elyria (forge), Norton & Barnum	"
1834—Dover, Cayahega county, Barber & Hoyt, Cuyahoga Steam Furnace Company, run until recently.	
1834—Florence, Huron county, Ford, Wilkinson & Co.	1840
1835—Mill Creek, near Youngstown, not known	1850
1835—Middleburg, Cuyahoga county, near Berea, D. Griffith & Co.	1850
1840—Akron, Ford, Todd & Rhodes	1855
1840—Valley Forge, below Cuyahoga Falls, D. J. Garrett & Co.	1845

In July, 1845, Himrod & Vincent, of Mercer county, Pa., blew in the Clay Furnace, not many miles from the Ohio line, on the waters of the Shenango. About three months afterward, in consequence of a short supply of charcoal, as stated by Mr. Davis, their founder, a portion of coke was used to charge the furnace. Their coal belongs to seam No. 1, the seam which is now used at Sharon and Youngstown in its raw state, variously known as free burning, splint, or "block coal," and which never makes solid coke. A difficulty soon occured with the cokers, and, as Mr. Himrod states, he conceived the plan of trying his coal without coking. The furnace continued to work well, and to produce a fair quality of metal. It was either a happy accident or a fortunate experiment.

At the same time, Messrs. Wilkinson, Wilkes & Co. were building a furnace on the Mahoning, at Lowell, Mahoning county, Ohio, intended to use mineral coal from seam No. 1, on which they owned a mine, near Lowell.

A sharp correspondence occured in 1869, between the partisans of the Clay furnace and those of the Lowell Furnace, as to their priority in the use of raw coal. The credit of making the first iron with raw bituminous, or semi-bituminous, coal in the United States belongs to one of these firms. An account of the blowing in of the Lowell Furnace, on the 8th of August, 1846, may be seen in the Trumbull *Democrat*, of Warren, dated August 15, 1846, where it is stated that to "these gentlemen (Wilkinson, Wilkes & Co.), belongs the honor of being the *first persons in the United States* who have succeeded in putting a furnace in blast with *raw bituminous coal*." According to Mr. Wilkes, writing from Painesville, April 2, 1869, this furnace was run with coke several months, but at what time he does not state. It is admitted that Mr. David Himrod, now of Youngstown, produced the *first metal* with raw coal about the close of the year 1845, and has continued to use it ever since. The friends of Wilkinson & Co. claim that it was an accident and a necessity, while their works were built and intended for raw coal. Without attempting to settle the question to whom belongs the most merit for this first success, all iron masters, and every one who takes an interest in the enormous business which has risen from the enterprise and intelligence of these firms, must feel willing to regard them as public benefactors. There are said to be at the present time thirty-seven furnaces, nearly half the number there is in Ohio, working on that fuel on the waters of the Mahoning and the Shenango. Most of them have business relations with Cleveland. The metal produced is largely from Lake Superior ore, and, for variety of uses, has not its equal in quality in any part of the world, excepting only iron made with charcoal from similar ores. That made with coke must, of necessity, be inferior in grade; but for rails and many other uses there is a large market for second and third-class metal.

Faults in the Construction of Steam Boilers.

The following interesting and very important practical remarks on steam boilers are taken from a report published in the *Zeitschrift des Vereins deutscher Ingenieure*, of an address delivered by Chateau. The lecturer, being an engineer on the commission for the examination of steam boilers in Pfafz-Saarbruch, had enjoyed special opportunities for learning the faults of boilers now in use there.

The cylindrical boilers belong to the simplest system of boilers. One of the faults repeatedly noticed in this and other forms of boiler is that the first row of plates nearest the fire are too short. They should never be less than two meters (6 feet 8 inches) long, so that the pointed flame will not come in direct contact with a row of rivets, thus unriveting them and causing a leak. For the same reason the joints of the iron plate on the head next the fire must be perfectly protected.

Another fault is, that in the smaller boilers there is no outlet cock attached, and the consequence is the boiler has to be blown out under a high pressure through the feed pipe which enters the top of the boiler. In most cases this occasions leaks.

In cylindrical boilers, with heaters below, the following faults are most frequent: The pipes that connect the upper and lower boilers do not enter the latter at their highest point, nor are they sufficiently inclined. The consequence is that bubbles of air and steam collect in the highest part of the lower boiler, and this gradually burns out. When the inclination is insufficient, bubbles of air and steam collect at the joints, and permit of their burning out. The inclination of the lower boiler should always be greater than the sum of the thickness of all the joints. Furthermore, that portion of the lower boiler beyond the connecting tube should be conical, so that all the air and the steam generated here will pass up through the connecting pipes into the main boiler. Beside, it frequently happens that for the sake of convenience in transportation, the connecting pipes are made in two pieces, and screwed together at the place where the boiler is set up. In most cases this screw joint is not perfectly tight, and the result is that the lower boiler soon rusts through. In this system it sometimes happens that the man-hole, feed and discharge cocks are placed below the ash hole. The consequence is that the man-hole is very seldom opened, and the lower boiler seldom cleaned, because it is difficult to pack the man-hole tight again in this spot. The feed pipe should be attached on the side, and not lower down than the middle of the tube; the discharge cock, on the contrary, should be as low down as possible. To remedy these faults it is recommended that the lower boiler be provided with head containing the man-hole. This would be partially in the wall and partially project from the mason work. The connecting pipe should be screwed to a flange on the highest part of this head, and connect with the rear head of the upper boiler.

Before all things, the fire drafts should all be provided with the necessary openings for convenient and thorough cleaning, and, at the same time, these holes permit of an easy examination of the boiler.

The cylindrical boiler, with two side heaters, forms the third system. This style of boiler is much used in Pfafz, and, when correctly built, wear well, and are, at the same time, easily cleaned. Here, too, the rule that the connecting pipes should be at the highest point is generally violated. Neglect of this rule may easily result in danger, especially in case the door of the fire place remains open long, for then the main boiler cools rapidly, while the heaters, being covered with hot ashes, do not cool so suddenly. The bubbles of steam collecting in the heater attain a higher tension than the steam in the main boiler, so that the water in the former is driven back into the main boiler, and it appears as if the whole boiler was full of water. If, in spite of this, feed water is introduced, the water is suddenly forced back so violently that if the heater is not in very good condition an accident is liable to occur.

The Cornwall or tubular boilers, especially of a diameter of 1¼ metres, should be totally rejected, for the space between the tubes and the main boiler at the bottom is too small, and the boiler cannot be cleaned at this place. The consequence is, that in firing below, the fire plate in a short time becomes defective, and can only be partially repaired, so that a new plate has to be put in, only to be renewed again in a short time. If the fire is within the tube, the arrangement is less injurious, for a longer time intervenes before the space between the tube and the outside of the boiler becomes filled with slime or boiler incrustation. Beside, the under plates cannot burn out so easily, because the gases produced by combustion are already considerably cooled by passing over the main boiler. By attaching a mud drum (*schlammsacke*), feed water heater, and the like, the disadvantages are decreased, but cannot be entirely overcome.

These boilers can only be used to advantage when the diameter is at least two metres. The vertical plates must all be well finished around the edges, and strengthened with a flat iron ring; all the horizontal seams must be on the inside, so as not to be touched by the fire; beside, any subsequent chiseling that becomes necessary is done more conveniently. If strengthening rings are put around the flue they must not fit closely to it, but must leave a space at least 15 centimetres from the flue, so that there will always be water circulating between the ring and the flue. To make a tubular boiler with interior firing really efficient, it is necessary, before all things, to clean it often, and especially to remove the ashes from the flue; hence, great care should be taken to provide cleaning holes.

The Field boiler, which has recently come into extensive use, has not fulfilled the expectations of it—that no incrustation would form in the tubes—for this has proved to be entirely false.

In using water that forms incrustations, it has been found necessary to take out the tubes every fortnight and clean them to prevent their burning out. The Field tubes which screw in are to be utterly rejected, because after a short time they cannot be unscrewed again. The tubes can be fastened in in a simple and solid manner by turning a cone on the end of the tube, so that it fits exactly into the cover of the fire box and is ground to it. A simpler and cheaper method of fastening the tubes into the top of the fire box is to dip the cone into a zinc bath, and then to drive the tube into its place with a hammer.

New Crane for Glasgow Harbor.

For some years great complaints have arisen owing to the want of sufficient crane accommodation at Glasgow harbor; but the Clyde authorities have done much to remove the difficulty by providing a new 60 ton crane at the Plantation Quay. The new crane, which has just been tested, was constructed by Messrs. James Taylor & Co., of Birkenhead. Those competent to form an opinion, speak of it as a magnificent piece of workmanship, well designed, and of ample strength for the purpose for which it is intended. It was tested by means of a load of 69 tons of pig iron, which it lifted easily, and swung round the whole circle in three minutes—lowered, heaved, and turned at the same time. From a description of the crane furnished by Mr. Deas, the engineer to the Clyde Trust, we learn that quite a new description of substructure had been adopted. The foundation he described as quite unique, being such as no other crane in the world had. This consisted of a dozen concrete cylinders of 12 feet external diameter, each resting on a cast iron shoe, and sunk to a depth equal to the cylinders supporting the quay wall, of which it forms a part, viz., 52 feet below the level of the coping. These latter cylinders are 3 feet 4 inches in thickness, finished at 3 feet below low water level, being filled up with weaker concrete than that used for the other cylinders. The crane seat proper consists of ash tar and concrete rubble masonry, from 3 feet below low water, with granite coves. The same material is used in the construction of the top course. The seat is 38 feet high above the top of the cylinder. It is perpendicular on all sides to a hight of 9 feet above the quay level, and measures 44 feet by 38 feet. At the level named it is reduced in size to 36 feet by 34 feet. There are steps on three sides to the top, which latter is 32 feet square, and 16 feet above the quay level. That part of the seat facing the river is perpendicular for its whole hight from the top of the cylinders. It is estimated that in the seat above the cylinders the estimated weight of masonry is 3800 tons; above the level of the washers of holding down bolts, 1940 tons, whilst the crane without load weighs 150 tons. One of Duckham's hydrostatic weighing machines, the qualities of which has been satisfactorily tested by the Clyde trustees, has been fixed to the crane, and the whole arrangements are such that the heaviest load can be disposed in the required place with the utmost nicety. The harbor tramways have been extended to the crane, and a new roadway of easy gradient, constructed so as to facilitate the movements of the traction engines and the loading of heavy machinery.

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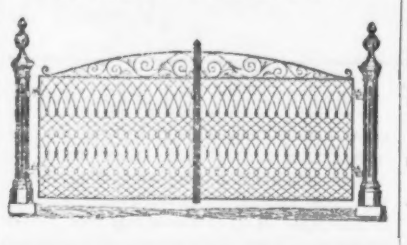

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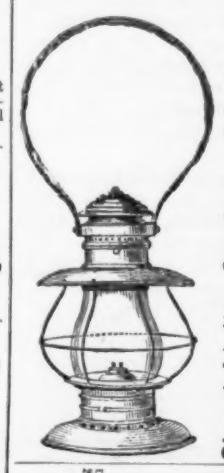

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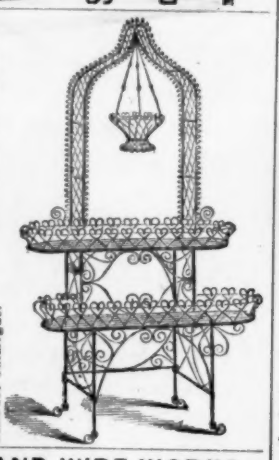

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WIRE RODS of all Grades; Round Iron, Rivet quality, 3-16 in. to ½ in., cut to any length.

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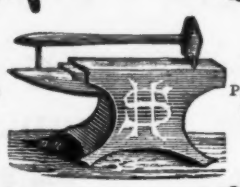

Trade Mark. PATENTED Sept. 16, 1873. PATENTED Feb. 17, 1874.

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This Welding Compound is of indispensable utility in all establishments where iron and steel are forged, whether on a large or small scale. It perfectly unites iron to iron, iron to steel, steel to steel, wrought iron or steel to cast iron, and iron or steel to Bessemer metal, without requiring the parts to be welded to be brought above a cherry red heat, and effecting a great saving in fuel over all other welding compounds or fluxes which require the metals to be brought to a white heat.

This compound is manufactured under the inventor's personal supervision, and is sold and warranted genuine under the above trade mark, in 5, 10, 50 and 100 lb. packages. Price for 5 and 10 lb. packages, 30 cents per lb.; for 50 and 100 lb. packages, 25 cents per lb. Samples sent on order.

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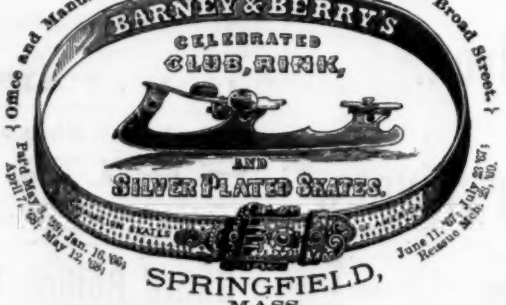

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The patentee of the above machine, after an experience of 15 years in the manufacture and sale of double-seamers and other tinners' tools, now offers to tinners this machine, which will double seam all kinds of straight, flaring and oval work, coffee pots, &c., &c. It works readily on the lightest and heaviest grades of tin plate and other sheet metal. It is strong and handsomely made and is warranted. This is the best and cheapest seamer ever offered to tinners. For full particulars send for circular. Price only $25.

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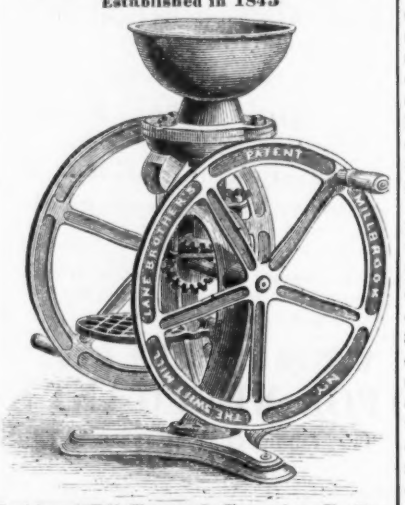

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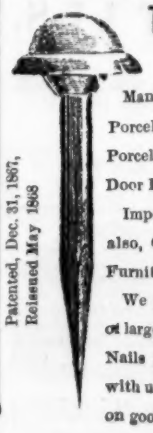

Patented, Dec. 31, 1867, Released May 1868

T. C. RICHARDS & CO.,

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Manufacturers of Richards' Patent Porcelain-head Picture Nails; also, Porcelain Picture, Drawer, Shutter, and Door Knobs, etc., etc.

Importers of German Brass Goods, also, China, Gilt, Steel, and Silvered Furniture Nails Wire Nails etc,, etc.

We particularly invite the attention of large buyers to our Patent Picture Nails and Knobs being a specialty with us, we offer satisfactory discounts on good orders.

The West Cumberland Iron Works.

The works of the West Cumberland Iron Company consist, altogether, of six blast furnaces, each 55 feet in hight, but varying from 18 feet to 21 feet in the diameter of the boshes, or widest part. The furnaces are blown by a pair of beam engines, having a blowing cylinder of 8 feet diameter, and a steam cylinder 3 feet 8 inches diameter—the length of piston stroke being 8 feet 6 inches, and the engines working at the rate of 20 revolutions per minute. The oldest furnaces belonging to the company were built in 1860, in which year, also, the blast engines were erected. There is no very special feature about any of the blast furnaces. All of them have recently been fitted with the usual bell and hopper apparatus, patented by Head, Wrightson & Co., of the Teesdale Iron Works, South Stockton-on-Tees, for the utilization of the waste gases, which are conducted to the heaters and boilers in the ordinary way. The hoists used for the elevation to the top of the furnaces of the raw materials are also on a principle patented by Mr. Wrightson, of Stockton, and well known both in the Cleveland district, where it has been largely adopted, and in Wales, Staffordshire and Scotland, where its application is of more recent date. The ore used in the blast furnaces is a mixture of some half a dozen different kinds and qualities, but the great bulk of it is brought from Cleator Moor. The West Cumberland Company, however, like most other hematite iron makers, are always open to negotiate the purchase of ores suitable for steel making purposes, and thoroughly believe that the best results are obtained from a judicious mixture. The fuel used here is not the same as that chiefly adopted in the Barrow district. Within a few miles of their furnaces the West Cumberland Company are working a royalty which produces a quality of coal suitable for the manufacture of coke. The coal is brought to the blast furnaces in its raw state, and on either side of the yard separating the blast furnaces from the steel works of the company there are a large number of coke ovens at work. Such an arrangement as this is rather singular—so singular, indeed, as to be almost entirely confined to these works, in the North of England, at all events. There is not a single instance in the Cleveland district proper of coke ovens being worked alongside blast furnaces, although something of the kind may be seen in the center of the great coal field of South Durham, at the Witton Park Iron Works of Bolckow, Vaughan & Co., and at the Tudhoe Works of the Weardale Iron and Coal Company. It is not, however, an uncommon thing on the Continent, and especially at the iron works on the Meuse—such as those of Ougree and Seraing—it is quite customary to find not only coke ovens being worked alongside the smelting furnaces, but also the still rarer conjunction of coal mines and blast furnaces within a few yards of each other. In Cleveland, of course, most of the iron works are situated at a distance of some 30 miles from the source of their fuel supplies, whereas, in the case of the West Cumberland Works, the collieries supplying the fuel are not more than six miles distant, and the cost of freighting the raw coal to the works in the latter case will be much less than in the former. The coke is said to be of a good quality, although it must come far short of the South Durham coke, seeing that the latter is always preferred for any special brand, and that there are other firms in this district that use no other. The production of the West Cumberland blast furnaces averages from 200 to 250 tons per week each. The general character of their arrangements is very much similar, apart from hight and capacity, to those built in the Cleveland district. The company possess a manifest advantage in the near proximity of the sea, which is within 100 yards of the furnaces, and furnishes an illimitable tip for the slag, a boon which many iron masters occupying a more insular situation, and, therefore, at a great loss in disposing of their waste vitreous produce, would highly appreciate.

The steel works are separated by a distance of some yards from the blast furnaces, part of the intervening space being occupied with a small forge and workshops. With the exception of the works of the Barrow Company, these are undoubtedly the finest steel works on the West Coast. Their arrangement has been carried out in a way that leaves no economy or improvement unstudied. There are four Bessemer converters in operation, each of them having a capacity of seven tons—so that, according to the authority of the list of works having Bessemer converters in 1872, published by Mr. Hunt in the "Mineral Statistics" for that year, they are the largest converters in this country, except those employed by John Brown & Co., of Sheffield. Holley's patent bottoms are used by the West Cumberland Company. These bottoms were described to the Institute at their Barrow meeting by Mr. Holley, of New York, the patentee, so that the curiosity of the visitors to the works had been in some measure stimulated to observe their operation. We have the authority of the manager of the Bessemer department at the West Cumberland Works for the statement that the owners are highly satisfied with the results of the substitution of Holley's for the ordinary bottoms, especially on the score of economy. The operation of casting the steel into ingots is performed here in the ordinary way, and in witnessing that process visitors could not remark anything novel. In the subsequent processes, however, the rails are drawn out in lengths of 48 feet, and then, in their red hot state, they are brought to a guillotine, and cut into lengths of 21 feet—so that for every two rails there are only two crop ends. In some cases it is found possible to draw out lengths of 60 feet to 64 feet, thus allowing only two crop ends for three rails; but in general practice it is better to stick to the shorter and more wieldy length of 48 feet. From the time that the bloom or ingot was taken from the furnace and put into the first pair of rolls to the moment of its transformation into a finished rail of 48 feet long only a few seconds over two minutes elapsed. The rolls are of exceptional capacity and power—so much so that we have the authority of Mr. Hill, the manager of this department, for saying that in a 26 inch train, fitted with Ramsbottom's reversing gear, he could make as much as 1200 tons of rails per week, provided that the cogging mill, which is somewhat of a hindrance, were removed. This, we need not say, is a production that has very rarely attained on this side of the Atlantic, although our trans-Atlantic friends appear to have no difficulty in making it a regular thing. There is another 24 inch train worked on the ordinary clutch principle, by a pair of horizontal coupled engines. Of the machinery as a whole, and especially of the engines that actuate the Bessemer department, it will be admitted by the visitors that they have seldom seen anything better; and it certainly is not surprising that with a manager like Mr. Snelus, and directors like Mr. Fletcher and Mr. Lancaster, the works of the West Cumberland Iron and Steel Company should have attained the high position they now occupy. The works employ altogether from 2400 to 2500 hands, and produce about 1600 tons of pig iron per week.

Closely adjoining the works of the West Cumberland Company there are four or five furnaces belonging to the old Workington Iron Company, which have been out of blast for some months, owing either to some dispute with the men or to some Chancery litigation—we cannot say which. These works were not visited, nor were those of the North of England Iron Company, which also abut upon the West Cumberland Works. The latter establishment has been built to the designs of Mr. Barclay, of Kilmarnock, a well known Scotch engineer, and has two furnaces in blast. These works are of recent date, having been built, we believe, since 1870, and visitors, although they have not the privilege of inspecting them, could not help being struck with the mechanical peculiarities and structural uncomeliness of an arrangement which Mr. Barclay has designed with the view of effecting the more perfect utilization of the waste gases of the furnace. This arrangement takes the form of a brick structure, built above and overhanging the furnace, of a shape not unlike an ordinary coking oven. The precise mode in which Mr. Barclay hopes to be able to carry out his ideas has not yet been made known; but, whether his experiment be successful or not, the appliances by which he expects to carry it out will give quite a different aspect to a blast furnace, and effectually get rid of whatever symmetry there may hitherto have been about erections of the class.

The Moss Bay Hematite Company's Works situated at the distance of about a mile from the works above alluded to, are arranged on the most modern principles, and were, we believe, the first works in this locality to make use of the appliance for economizing the waste gases. A forge is attached to these works employing between 300 and 400 men; and here can be seen at work a number of puddling furnaces on a new principle, patented by Mr. Kirk, the manager, which work with a consumption of not more than 15½ cwts. of coal to the ton of puddled bar. An attempt has been made to introduce this furnace into the Cleveland district, but the workmen threw such obstructions in its way that it was found a hopeless task.

An inspection of the Maryport Iron Works, belonging to Gilmour & Co., and of the Solway Works, belonging to the Solway Hematite Iron Company—both situate at the town of Maryport—was undertaken by a section of the party forming the excursion into Cumberland; but at both of these works, which are exclusively devoted to smelting purposes, carried on under conditions almost precisely similar to those described above, the mechanical appliances were mostly of the usual kind. The latter establishment has six and the former four blast furnaces making exclusively hematite iron, but one-half of the furnaces available for use are now out of blast, owing to the prevailing slackness in trade.—*London Mining Journal.*

Prices of Pig Iron—Fluctuations in the Price per Gross Ton from the Close of the War in 1865 to October, 1874.

The Cleveland *Leader* says the following, collated by L. F. Bauder, are the fluctuations in the price of pig iron from the close of the war in 1865 to 1874. These prices are quotations of actual sales of gray forge iron, delivered at Pittsburgh, on four months' time, bituminous coal, iron smelted from Lake Superior ores:

1865	Dec.	$50·00	1872	Sept.	$52·50
1866	May	44·00		Oct.	50·00
	Sept.	45·00		Nov.	45·00
1867	Jan.	48·00		Dec.	40·00
1868	Feb.	36·50	1873	Jan.	40·00
	May	36·50		Feb.	40·00
	Sept.	40·00		March	43·00
1869	Jan.	38·50		April	42·00
	May	38·00		May	45·00
	Sept.	37·50		June	38·00
1870	Jan.	37·50		July	36·00
	May	33·00		August	34·25
	Sept.	31·00		Sept.	34·00
	Nov.	30·00		Oct.	33·00
1871	Jan.	31·00		Nov.	30·00
	May	33·00		Dec.	30·00
	Sept.	35·00	1874	Jan.	31·00
	Nov.	40·00		Feb.	31·00
1872	Jan.	40·00		March	30·00
	Feb.	41·00		April	27·00
	March	45·00		May	27·00
	April	50·00		June	27·00
	May	55·00		July	27·00
	June	55·00		August	26·50
	July	50·00		Sept.	26·50
	August	53·50		Oct.	25·50

At Pittsburgh, or after paying freight, cartage, weighing and commissions, less than $23 in the furnace yards in the Mahoning and Shenango Valleys.

The latest Chicago papers state that the fall trade in that city has been quite satisfactory to the great majority of merchants, and that although the average of profits has been small, the volume of legitimate mercantile business last month was greater than any previous October. There is also reason to expect that the winter business will bear an equally favorable comparison with the former years. This means a prosperous condition of affairs generally throughout the Northwest.

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A. R. Whitney & Bro.,
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Bar Iron, Sheet Iron, &c
Of every description

Iron.

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English and American Refined Iron,
COMMON IRON,
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Horse Shoe Iron & Horse Nails,
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Sole Agents for the Celebrated Horse-Shoe Brand
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AGENT FOR
Best Norway N. R. & Shapes,
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28 & 29 West and 52 Washington Sts.
BOILER PLATE,
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Sole Agents for the celebrated
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Brands of Iron. Also all descriptions of Plate, Sheet, and Gasometer Iron. Special attention to Locomotive Iron. Fire Box Iron a specialty.

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POWERVILLE
ROLLING MILL,
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450 & 451 West Street, NEW YORK.
Manufacturer of all sizes of MERCHANT IRON and HOOPS. Also Manufacturer of
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And Dealer in Old and New Iron.

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MANUFACTURER OF
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AND AGENT FOR THE
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MANUFACTURER OF
Best Bloom, Charcoal & Refined Sheet Iron.
Galvanized Telegraph and Fence Wire
Galvanized and Tinned Roofing and Slating Nails.
Galvanized Hoop Iron of all widths.
Galvanized Staples.
Corrugated Iron for Roofing, plain or gal'd.
Galvanized Bars and Chains for Cemetry Railing.
Tin Plates, Spelter, and other Metals.

NORWAY IRON WORKS.
Spring, Tire, Toe Calk & Sleigh Shoe Steel.
BLISTER STEEL,
SCRAP RODS,
3-16, 1-4 and 5-16 Round and Square.
Norway Shapes & Nail Rods,
Etc., Etc. Address,
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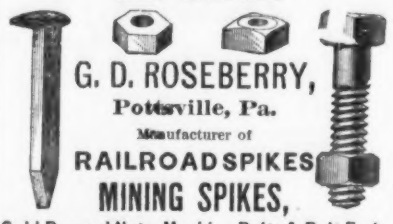

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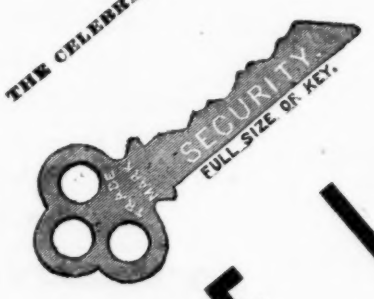

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New Patents.

We take from the records of the Patent Office at Washington the following specifications of certain patents lately issued, which will be found interesting:

IMPROVEMENT IN METALLURGIC AND OTHER REGENERATOR FURNACES.

Specification forming part of Letters Patent No. 155,150, dated September 22, 1874, issued to Morrison Foster, of Allegheny, Pennsylvania:

Figure 1 is a vertical longitudinal section of an improved regenerator, and Fig. 2 is an end view of the same.

Like letters refer to like parts in each figure.

The invention relates to apparatus employed for utilizing the heat contained in the waste products of combustion, on their passage from the hearth of the furnace, in the manufacture of iron and steel, generally termed regenerators; and it consists in controlling the temperature of the products of combustion in the down take, or flue leading from the hearth to the regenerator, by the admission of air, for which purpose a series of air passages in the walls of the down take are provided at such points that the temperature of the products of combustion escaping from the hearth may be reduced before reaching the regenerator.

Regenerator furnaces, as heretofore constructed, have been of two general classes: First, those in which the products of combustion passing from the fire chamber or hearth gave up their heat to the walls or surfaces of the regenerators, from which same surfaces it was again absorbed by the incoming air and gases; and, secondly, those in which the products of combustion passing continuously through a series of passages gave up the heat to surfaces which transmitted it to an incoming air and gas passing continuously over the opposite surfaces of said tubes or passages.

Fig. 1.

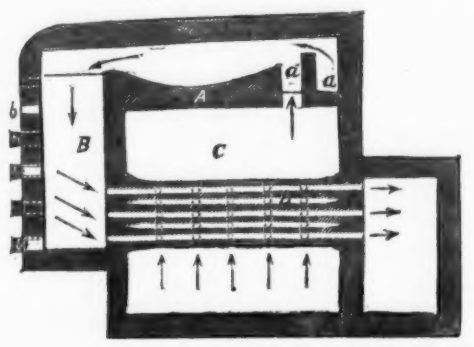
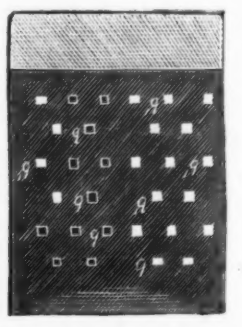


Fig. 2.



IMPROVED REGENERATOR FURNACE.

While the present invention is applicable to both classes of regenerators, it is more especially adapted for the second or latter classes. The difficulties to be overcome in the present regenerative furnaces are: First, the cutting or destruction of the tubular or other works subjected to the products of combustion coming directly from the hearth; and, secondly, the derangement of the furnace from the unequal expansion and contraction arising from alterations of temperature due to the intense heat. To such an extent have these causes militated against the usefulness of regenerative furnaces, that but few have been successfully and economically worked, the intense heat to which the regenerative apparatus of furnaces is subjected inducing such unusual degrees of expansion as to require special provision to counteract this disturbing element.

The idea has heretofore prevailed that in order to obtain the best effects in working regenerative furnaces the greatest possible heat should be imparted to the regenerator, and all waste heat of the products of combustion utilized. But it is evident, when we consider that even for steel making, from 3600° to 4000° Fah. is the highest heat required on the hearth, and at the time the combustion takes place the elements entering into the flame are raised 1200° Fah., or thereabout, it is not necessary that the temperature of the regenerator should exceed 2400° to 2800° Fah., provided the regenator is of sufficient capacity for the work expected of it; and if the temperature of the products of combustion passing from the hearth to the regenerator is so controlled as to maintain the regenerator at or about that temperature, the useful purposes of a regenerator will be attained, and the heats which have been heretofore so detrimental will be avoided.

The present construction of regenerator furnaces is not such that the temperature of the products of combustion passing to the regenerator can be regulated, but must vary according as a reducing, neutral, or melting flame is used. The object, therefore, of this invention is to provide a means for controlling the temperature of the products of combustion, as heretofore stated.

In the drawings referred to, A indicates the hearth of the furnace; *a*, the flue for the admission of heated air; *a'*, the flue for the admission of heated gas; B, the down-take or flue leading to the regenerator; C, the heating chamber, through which the air and gas pass on their way to the hearth; D, the hollow bricks or tubes of which the regenerator is constructed, and through which the products of combustion pass on their way to the chimney, and around which the incoming air and gas pass to take up the heat. These are, or may be, all of the usual or any approved construction. Through the outer wall of the down take, or flue, B, are a series of openings, *b*, for the admission of air to the down take, to reduce the temperature of the products of combustion on their passage from the hearth A. These openings may be partially or entirely closed at will by a series of plugs or other devices, *b'*. They may extend the whole length of the down take, or so far up as is found by practice in each case to be best.

By this means the products of combustion coming from the hearth are diluted at any point desired, either in the upper portion, near the throat, or lower down, at the points opposite the regenerator proper, as circumstances may dictate.

In the manufacture of iron and steel upon the hearth, the products of combustion coming from the hearth are at about 3600° or 4000°, if complete combustion has taken place, and the admission of air to the down-take under such circumstances does not increase the temperature, because the carbonic oxide has been completely consumed, and there is no chance for further combustion. These openings *b* are also used as spy holes, and as long as the structure of the throat and regenerator remains intact (which it will generally do so long as not unduly heated), it is not necessary that air be admitted to reduce the temperature; but, if the heat be such that the walls of the throat, or of the regenerators, are in danger of becoming affected, which will be discovered by the operator, (this will often occur when a white heat is approached), then the temperature of the products of combustion may be reduced by the removal of the required number of the stoppers *b'*, and the location of the openings from which they are removed will, of course, be dependent upon the part of the throat or regenerator furnace which is affected. At such times as a neutral or reducing flame is used upon the hearth, and where much carbonic oxide is passing off with the products of combustion, it is, of course, not desirable to use the openings, or to admit air to the down take, for the reason that the only tendency would be to promote combustion in the down take, and negative the use for which they were intended. Moreover, under a reducing flame, or when carbonic oxide is passing over, there will be no need of their being used, because the temperature is then not likely to be such as injures the regenerator.

The invention, therefore, consists in providing means for the admission of air into the flue or down take in such manner as to reduce the temperature and protect the down take and the tubes of the regenerator from the excessive heat to which they are liable; and the advantages of said invention are apparent from what has been heretofore stated.

Claim 1. The method of controlling the temperature of the products of combustion in regenerator furnaces, after their escape from the hearth, by the admission of air.

2. In a regenerator furnace, the combination, with the down take, or flue, B, of a series of openings for the admission of air to the down take, or flue.

IMPROVEMENT IN METALLIC ALLOYS.

Specification forming part of Letters Patent No. 156,007, dated October 13, 1874, issued to Howell W. Wright, of Glastonbury, Conn.

German silver and other alloys have been used for forks, spoons and other articles of table-ware; and the same have been plated with silver, and also with nickel. When this plating is worn off, the metal, being of a different color, appears in a very objectionable manner; and, beside this, the metal is comparatively soft and liable to bend, and it is not adapted to use as a knife, because the edge will not remain sharp. Beside this, the silver of the plating is an entire loss after the plating is injured or worn off.

This invention is made with reference to the production of a metal that resembles silver, and that is very strong and elastic, and, hence, especially adapted to use in the manufacture of forks, spoons, knives and other articles of table-ware, and thereby dispensing with nickel or silver plating; but the alloy is not limited in its use to these articles, but may be employed for any object to which it is available.

It makes use of silver, nickel, copper and zinc in about the following proportions: Silver twenty-five parts; nickel, eighteen parts; copper, thirty-five parts; zinc, twenty-two parts—one hundred parts.

The copper and silver are to be first intimately melted with a suitable flux, such as lime, chalk or borax, or two of these materials, and to these the nickel is added. The nickel will melt with ease when thus introduced. The zinc is added, and thoroughly mixed. This is preferably performed below a covering of silica, and a rod of plumbago can be used for stirring.

This alloy is adapted to being rolled, forged, or otherwise worked, and it requires annealing from time to time.

The metal possesses great strength and elasticity, and it is capable of use for knives, as well as articles of table-ware. The color resembles silver, and the metal is capable of receiving a high polish, or of being burnished.

The cost of plating is avoided, and the silver that is introduced is always available, as the alloy can be melted and worked up into different forms without loss, or the silver extracted.

The alloy of silver, copper and zinc is well known, and copper and zinc have been combined with nickel.

Claim.—The metallic alloy composed of silver and nickel with copper or zinc, substantially as set forth.

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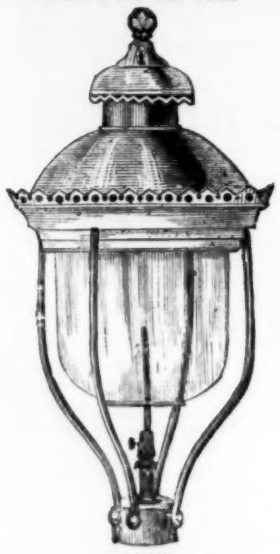

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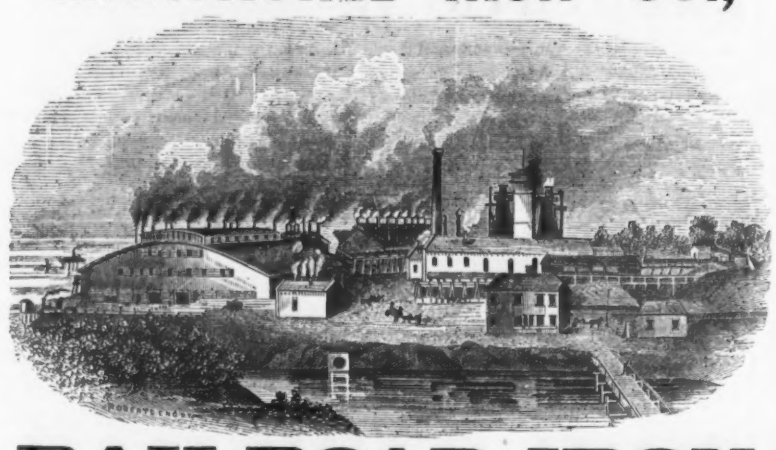

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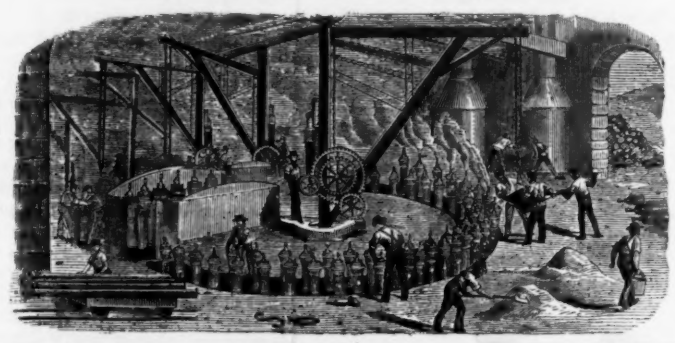

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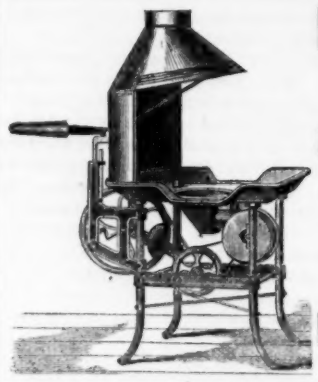

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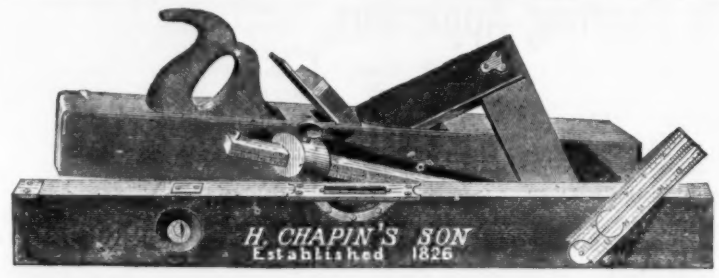

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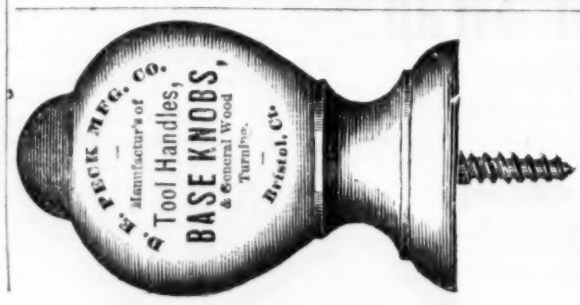

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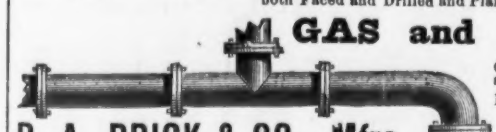

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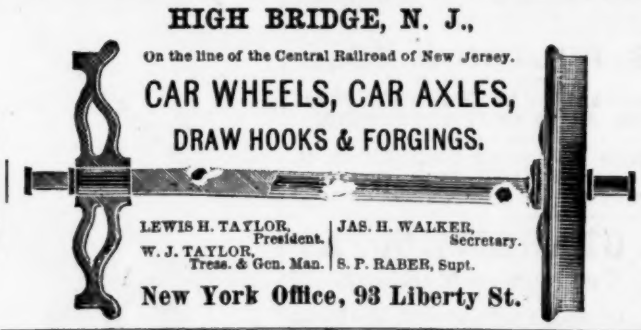

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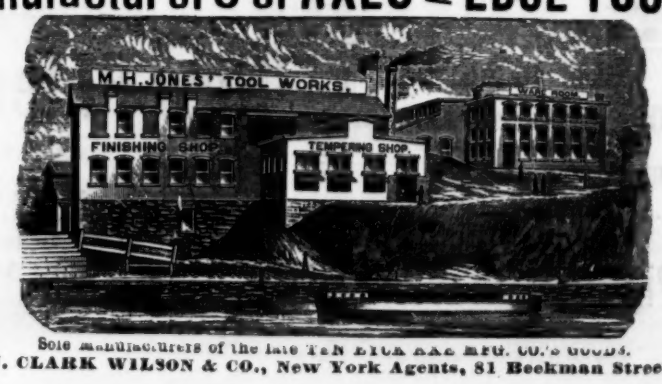

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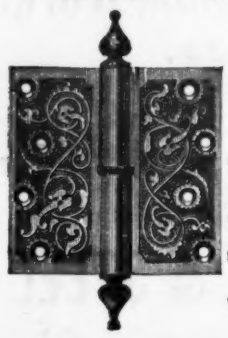

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The Manufacture of Needles.

Redditch, in Worcestershire, is the seat of the needle manufacture. It is a small town of about 7000 inhabitants, situated about fourteen miles from Birmingham. The variety and the intricacy of the processes of needle making renders any complete technical description quite impracticable, so that it will perhaps be most intelligible to trace up from the beginning the history of a needle, from the time at which it arrives at the mills in the shape of wire, to that at which it leaves them bright, pointed and polished, to fulfil its useful domestic mission.

The steel wire which is to form the needle is received at the works in large coils, of a gauge corresponding with that of the article itself. It is cut up into pieces, by means of a large pair of shears, fixed perpendicularly. These pieces are some two or three feet long. They are put into the "cutting measure," and cut into pieces which approximate in size to the length of two needles. When a sufficient number have been cut, two metal rings are put around them and they are so carried to a furnace. The object of this is to get the wire pliable, in order that it may afterward be made straight. When cut from the coil the piece is of course a segment of a circle. The rings containing the pieces of wire are placed on iron pans and exposed to a great heat. When red hot they are taken out by means of tongs, and placed on an iron table. Here they are operated upon with a large curved rough bar, which is moved backward and forward over them, causing each to rotate, and they then assume a perfectly plane shape.

The next step is to point this piece of wire, which is one of the most important of the processes. There are two ways of doing it. The old one, still retained in small establishments, was for the workman to take a handful and bring them in contact with a revolving grindstone, rotating each wire in his fingers all the time, to make the point round. This mode was slow and expensive, and it had the great additional disadvantage of being highly detrimental to health. The particles of steel thrown off by the attrition of the grindstone were inhaled into the lungs of the workman, and ultimately killed him. Various expedients were introduced to remedy this, and, strange to say, they met with the greatest opposition at the hands of the persons to be benefited—the workmen. The most efficacious was the use of a great fan, which, by creating a draught down a large tube, whose orifice was placed near the grindstone, carried away the suspended steel dust. In the new method a machine does the work automatically, with a vastly increased rapidity, with more even quality, and without any of the objectionable hygienic features of the other. The needles are placed in a kind of hopper, from which they gravitate down an inclined plane, until they reach a band of India-rubber, which carries them into contact with grindstones revolving rapidly. As each piece of wire is to make two needles, it requires to be pointed at both ends; hence it has to be turned or reversed, and again put through the machine.

We have now got a straight piece of wire pointed at the two ends. These ends are bright, owing to the friction of the grinding roller, but the center is quite black, as it is in the same condition as when cut from the coil of wire. To remove this black or rust from the place where the eyes have to be formed is the next step, and it is the operation called "skimming."

The machine for effecting this, known as a "skimming" machine, consists of arrangements for bringing the needles in contact with a revolving strap covered with glue and emery, and this gives to each piece of wire a polished band in the middle. The wires are put into the machine by the handful, and after being polished fall into a pan or tray. So quickly is this done, that four packets, or 150,000 needles, can easily be got through in an hour by an expert man.

The wires in this condition have now to undergo the "stamping" process. The object of this is to stamp out the part where the eye is to be formed. By means of a kind of die-press or stamp an impression is made of the eyes. The wire is not perforated, it is merely flattened in the middle, with two small grooves or sockets, where the eyes will fall. The needle is put against a gauge at the back, and two pins fixed in the table to keep it in position under the decending stamp or die, which is made of hardened steel. The latter is moveable, as there are different sizes and kinds of eyes, and each of course requires a separate die.

The wire has next to be perforated, which forms the process called "eyeing," and is done by an "eyeing" press. This is worked by girls, who are wonderfully expert at it. Although the perforator must fall exactly on the part of the wire idented to receive it, and the wire therefore requires to be fixed in the eyeing-press with the utmost precision, a clever girl can pass through it from 25,000 to 30,000 wires a day.

The next step is "spitting," which consists of threading the wires on two lines made also of wire, something in the same way as herrings are spitted on sticks; but the wires are strung through the eyes. This is done by boys. It is preparatory to the "filing." The object of this is to take away the enlargement in the middle of the wire caused by the stamping machine. This bulges out on each side of the eye, and it is the business of the filers, who are always men, to remove this by filing it away on a bench. A number of wires can be done together by being held down in springs, and the points duly protected from the action of the file. This has to be very carefully done, as if too much of the metal were removed the wire would snap, and the future needles be out of shape at the head. After being filed across they are broken by hand between the eyes. We have now a piece of wire which is something like a needle. It has a point and an eye, but the head is rough and jagged where the fracture took place. This has to be removed by filing. A quantity of needles is put into a holder or clamp with a spring handle to keep them firm, and the lot is filed together, which, like the other filing, requires great care, as, if overdone, the eye will be reached, and the needle rendered worthless. The needles are next taken off the wires and made up into packets preparatory to hardening.

The needle so far is quite soft, like the wire from which it was formed, or rather softer, owing to the ordeal of the straightening furnace. It is now hardened by being heated in a furnace, and then cast into a tank of oil or water and a certain chemical composition. This is perhaps the most picturesque of all the processes of needle making. The phizz when the bunch of irridescent needles is dropped into the vat, and the brilliant flames emitted from the surface from time to time, make a very pretty sight, although the odor of the oil is not at all agreeable. When taken out and cooled the needles are again made up into packages.

The next stage in the manufacture of the needle is the tempering. The needle has become quite brittle by its hardening, and the slightest deflection is sufficient to snap it in two. The object of the next process is to make it pliable and capable of being bent slightly without being broken. The temper of the needle (like, we might add, *en parenthese*, that of its fair user), is a very important matter, and a very good criterion of its value. The tempering is done on steel plates heated with fire, and does not differ materially from the system adopted in regard to other articles. The needle changes color altogether during this process, and acquires a kind of oxide. In color it is a bluish black, and it is rough and course to the touch. The needles are again made up into packages of from 20,000 to 90,000, according to size.

The removal of this oxide is the object of the operation called "scouring." The packages are opened, and then a quantity of the needles are put into a kind of rough cloth, called "hurden;" this may be compared to the familiar "roley-poley" pudding, as it is very like it in appearance and the mode of fastening it up. Soft soap, oil, and putty powder, emery and "suds" are then put on the needles, and the whole wrapped up very tightly with strong twine. The parcel is now taken to the scouring machines, where they are put under "runners," that is, heavy blocks of wood moved backward and forward by powerful machinery. This may be compared to the old mangle, the parcels of needles in their "burden" resembling the linen round the wooden rollers of the mangle. The effect of this motion is to make every single needle revolve, the pressure being very great. It is continued for about twelve hours, and then the parcels are taken out, opened, and the needles washed. They are put up again in the hurden, rolled and washed. This is repeated seven times. When finally opened and washed the needles are beautifully bright, and perfectly smooth along the entire surface.

The next thing to be done is called the "evenning." In the last mentioned process the needles have got all "heads and tails;" the points of some are up, and of others are down. Before proceeding further it is necessary to have them all in a row, and the mode of doing this is called "evenning." The needles are put into a tray and shaken about. Gradually they all lie parallel; then by a dextrous movement the tray is suddenly depressed at one corner, and the needles are brought into a pile. The dexterity with which this is done by girls is rather singular, and must require long practice to accomplish. The piles are laid out in rows, and placed ready for the "handing."

We have seen that the needles have been cut to sizes by the cutting measure. In the different processes, however, which they have subsequently undergone, it is impossible to make them all of exactly the same length. Now, in making up a parcel of needles of any one size they require to be exactly uniform in length, if only for appearance sake. A pile is brought to the "hander," and she straightens it up at the left side. On the right side, that is the side where the points are, it is at once seen that there are differences of length, because some points project more than others. The hander, having her left hand at the left side, places her right hand on the right side. She can at once feel the longest ones, and deftly lifts them out. The lot so lifted is called the "first handing." She again takes the longest out, which are, of course, shorter than the last lot; these are the second handings. The process is repeated till there are six handings, and the last are all of the same length, as far as can be detected by the eye. The accuracy with which these women select these different handings struck us as something extraordinary, the variation being so minute. Each handing is kept together in making up and packing the needles. It will be seen that there are, therefore, not only sizes of needles, designated as No. 1, No. 2, No. 3, and so on, but subdivisions of those classes, viz., the different handings.

After one or two minor operations the needles come to the "heading;" that is done to get all the heads and all the points together, for latterly they have got jumbled and are now "anyhow." They are spread out on a tray, and a girl having covered the first finger of her right hand with a piece of cotton or calico places it against the side of a row. All the points in that direction stick into the calico, and the needles can be drawn out. This leaves all the heads the other way. It is only necessary to turn the latter round and all the needles will be lying in order, all the heads together. It is a very ingenious way of doing this, and performed with great celerity. The broken and imperfect needles are also weeded out at this stage.

The needles are now weighed up into packages containing 1000, partly for the purposes of stock keeping. They are not counted, but weighed, and this enables the overseers to detect any undue waste or carelessness in the manufacture, as a given weight of wire should produce a certain number of needles.

The next stage in the manufacture is bluеing the heads and eyes. The use of this is to make the head and eye fit to withstand the subsequent operation. A quantity of needles is taken and arranged by a little girl in a row, and then placed on what is called a "strap," which is a piece of steel made for the purpose. The strap with the needles upon it is then taken and applied to a rectangular block of red hot iron, which blues just the heads and eyes, and no other part.

Now comes the drilling process; its object is to remove the burr inside the eye of the needle, which if allowed to remain would probably tear the thread run through it. The drilling is effected by a very fine drill, revolving rapidly. Women usually do this, and with great rapidity and precision. The drill does not go right through the eye, but penetrates first from one side and then from the other, in the end completely clearing it of any burr or roughness.

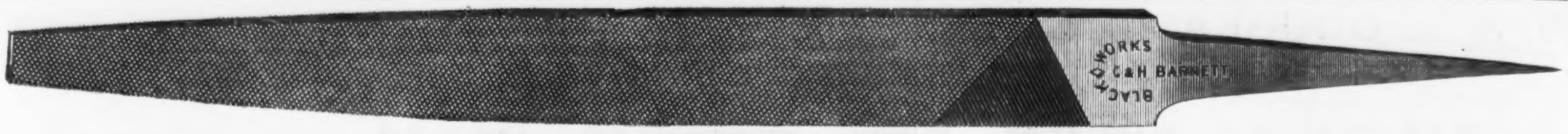
It should be mentioned here that the description of needles called "egg-eyed," as also some others are not drilled in the manner just mentioned. They are threaded on wires, roughed like a file, and then fixed in a "burnishing machine. This is a vibratory motion backward and forward, the effect being to make the needles spin round, with the wire as an axle. The rotation gives the smoothness in the eye that is required. Some needles are both drilled and burnished.

After either of these processes the needles are carefully rubbed between leathers, to get rid of any moisture that may happen to cling to them. Dampness is the great enemy of needles, and the greatest precautions have to be taken to avoid it.

The final process of needle making proper is the "finishing." The heads are first ground against a small revolving grindstone in order to make them perfectly smooth and round. Afterward they receive a "setting," in order to renew the points which have become somewhat blunt in the course of manufacture. They are then "cured" by being brought in contact with a revolving cylinder studded with small projecting wires. This clears out the heads from any extraneous matter that may have entered. Bluering, a subsequent operation, is resorted to in order to get the blue off the heads; it is done by grinding them on a buff. Last of all, they are held on a rapidly revolving buff, covered with wash leather, on which emery and other powders are rubbed. This gives to the needle that beautiful polish which the best needles ought to have. The whole surface of the needle is finished by being turned between the fingers and thumb of the finisher while holding them on the buff. They are "finished" three times, and then rubbed together on leathers. The greatest care is used in finishing, as if not properly done the needles would rust. The principal qualities of a good needle are these—the sharpness of the point, the symmetry of the tapering at the end, the clearness of the eye, and the temper.

The packing-up of needles forms a very important branch of the business. The slightest dampness spoils the best needle. The paper which is used is called purple, and is a kind especially manufactured for the purpose, having in its composition some fibre particularly adapted to exclude damp. This is cut up into long strips by a "guillotine" cutting machine, and then recut the proper length, suitable for the various sizes of needles. It then goes into the "creasing" machine, where it is creased ready for the needles. Formerly this creasing was done by hand; now a machine is used which is of a very ingenious construction. The greatest care is taken not to handle the needles; as the slightest moisture on the fingers would damage them. They are next placed 25 in each paper, labelled and dried to remove anything which may have affected them either by the humidity of the atmosphere or otherwise. They are finally made up in packages of 1000 to 10,000.

It is proposed to connect Pittsburgh and Millerstown, Pa., forty miles apart, by a line of three inch tubing for oil. This pipe, in its character and objects, certainly has no parallel in the world, and when the entire machinery is in operation it will afford a most unique feature of the petroleum industry. The points connected by this lengthy line of tubing are Millerstown, the center of the deep-well region of Butler county, and Fairview station, on the West Pennsylvania Railroad, about eight miles from Pittsburgh. From the receiving tanks at the former place, connections of inch pipe ramify to the producing regions adjacent, and collect the oil in two tanks of 25,000 gallons capacity; and at Fairview five immense tanks will be erected of 125,000 gallons capacity, from whence the Pittsburgh refiners of petroleum will be supplied by a pipe laid across the Allegheny River. The course of this line of pipe is a direct line, except in one small section. The pipe is to be laid on the surface of the ground, and will be traceable along its whole course through forest and field. Eight hundred tons of iron tubing are required for the line, and have been furnished by the National Tube Works, at McKeesport. It is now being laid at the rate of a mile per day. About thirteen miles of the tubing were delivered some months ago, and by this time a union of the two parties laying from both ends will in all probability have been effected, and the line possibly put in operation. The conduit company expects to be able to deliver 4000 barrels of oil in Pittsburgh every twenty four hours, and to this end no less than six pairs of fifty horse-power steam pumps are stationed at regular intervals along the line. At each relay, or pumping station, a 1500 barrel tank is placed to receive the oil, from which it is propelled along through the pipe with fresh impetus to the next station, where the operation is repeated. The entire line will be guarded night and day by walkers, and a line of telegraph will give speedy information of the occurrence of any accident.



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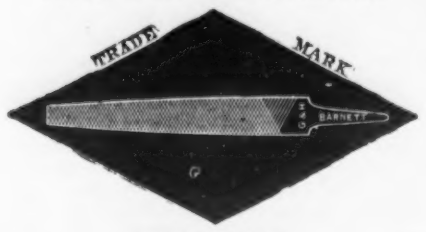

PRICE LIST.

BLACK DIAMOND FILE WORKS.

G. & H. BARNETT,

39, 41 & 43 Richmond Street, PHILADELPHIA.

LINFORTH, KELLOGG & CO.,

Sole Agents for the Pacific Coast, 3 and 5 Front Street, San Francisco, Cal.

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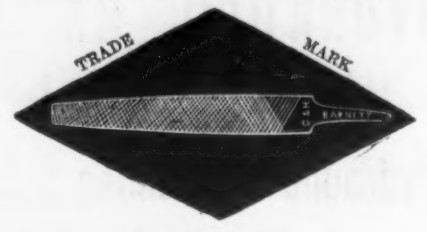

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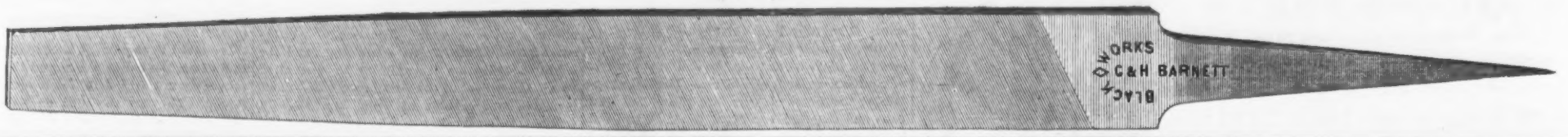

THE NICHOLSON FILE.

All Nicholson Files are cut with the Patent *Increment Cut*, an invention owned and controled exclusively by us, the file cut in this manner being Patented as a new article of manufacture, and differs from all other machine cut files (all of which have their teeth cut with equal spaces) by being cut with teeth slightly *expanding or increasing in size and space from the point*, thus avoiding the too great regularity of teeth common to all other machine cut files. The tendency of all cutting tools with teeth or cutters placed at regular distances from each other may be illustrated (to the machinist at least) by the fluted reamer—as it is well known that if a round reamer be made with (say 12) teeth whose spaces are equidistant, the hole reamed will *not* be round and smooth, but will approximate to a hexagon in shape. Whereas, if the same number of teeth be made of irregular distances, the hole reamed will be both round and smooth. The same is true of a file, hence the necessity of its having teeth at unequal distances, and to which we have applied the name of Increment Cut File, which possesses all the advantages of hand cut work, and the accuracy and uniformityof machine work. It is now upwards of seven years since this File was introduced to the public, and the demand has increased until our production is undoubtedly treble that of any File manufactory in the country.

We put all files under seven inches in boxes of either one-half or one dozen each. These boxes are neatly arranged, and open on the end, on which the kind is plainly marked with printed labels, acknowledged improvements on the old methods.

The "*Increment File*" is not an experiment, but an established fact, and already has acquired a legitimate demand or upwards of 500 dozen per day. We employ no *regular Travelers*, but our goods may now be found in the hands of the principal jobbers and dealers throughout the country.

Prices and terms will be forwarded on application to

NICHOLSON FILE COMPANY,
Providence, R. I.

USE THE BEST.

Pawtucket, R. I.

The American File Company have the exclusive right to use the Bernot process for cutting files By this method all the advantages of hand cutting are secured, together with an accuracy unattainable in hand work. They are the only manufacturers who employ machinery for testing files and steel.

Goods of all known manufacturers have been repeatedly tested, and interesting tables have been compiled showing the working qualities of files made by different makers, and of files made from different steels, and with various shapes and angles of tooth. They have thus reduced the manufacture of files to an exactness and perfection with a uniformity of result, as they believe, never before attained. No file, foreign or domestic, that they have ever tested, has equalled the performances of their own goods taken at random from their stock. Their machines are capable of the most delicate adjustment, and can produce the very finest work known to the trade. Special files made to order. Prominent file manufacturers are having their best goods from our works.

Price lists and information furnished on application.

AMERICAN FILE CO., Pawtucket, R. I.

FILES AND RASPS.

XTRA QUALITY,

MADE FROM THE BEST

IMPORTED STEEL

BY THE

Auburn File Works,

AUBURN, N. Y.

JOHN ROTHERY'S

Celebrated Hand-Cut FILES,

Made of Best English Cast Steel.

WALSH, COULTER & FLAGLER, Sole Agents,

83 Chambers and 65 Reade Streets, N. Y.

W. F. SHATTUCK & CO.,

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MANUFACTURERS OF AMERICAN HARDWARE.

Coes & Taft's Pat. Wrenches.
Axe, Pick, Sledge & Hammer Handles.
Hatchet, Auger, Chisel & File Handles.
Mallets. Pat. Boot Jacks.
Gimlets and Gimlet Bits.
Augers and Auger Bits.
Cocoa Nut Dippers.
Mouse Traps. Wire Screws.
Scale Beams.
Patent Tap Borers.
Tool Chests.
Climax Horse Collars.
Brandage Horse Nails.
Maguire's Wr't Iron Goods.
Shattuck's Platform Counter Scales.
Yaw's Cow Bells.
Axes, Picks and Hatchets.
Hammers. Crow bars.
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Boring Machines.
Cast Iron Hatchets.
Coffee Mills.
Star Steel Spoons.
Stocks and Dies.

Leather Belting.

PAGE BELTING COMPANY.

Sole Manufacturers of TRADE MARK.

Page's Tanned Patent Belting

PAGE'S PATENT TANNED Leather manf'd under Pat. MAY 8—1866. EXT. SEPT. 12, 1871.

GENERAL MILL SUPPLIES.

No. 24 Exchange Street, Boston.

Alexander Brothers,

Manufacturers of OAK TANNED

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410 & 412 North 3d. Philadelphia, Pa.

Established in 1849.

THE

Jackson & Woodin Mfg. Co.

Successors to JACKSON & WOODIN,

Manufacturers of

Car Wheels and Cars,

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COLUMBIA, CO., PA.

Established 1816.

Peter A. Frasse & Co.,

95 Fulton Street, New York,

SOLE AGENTS FOR

Thomas Turner & Co.'s Suffolk Works,

SHEFFIELD.

FILES AND HORSE RASPS,

And Importers of

P. S. STUBS' FILES, TOOLS & STEEL,

W. J. Davies' Sons' London Emery Cloth,

HUBERT'S FRENCH EMERY PAPER.

EVERY FILE WARRANTED.

Equal to the BEST.

Western Files.

Works, Beaver Falls, Pa.

Western Files.

Office, 96 Chambers St., N.Y.

Western Files.

LARGEST CAPACITY

Of any File Works in the World.

Western Files.

In the face of strong prejudice against American files, this brand has earned a reputation second to none. The trade in all sections testify to their excellence. We confidently offer these files as superior in every respect and cheaper than any first-class file in the market. A trial will confirm their reputation.

PENNSYLVANIA FILE WORKS.

Illustrated Catalogue and Price List

Sent to the Trade on application.

McCAFFREY & BROTHER,

Manufacturers of FIRST QUALITY FILES and RASPS ONLY,

Nos. 1732, 1734 & 1736 North Fourth St., Philadelphia, Pa.

GEORGE T. RICHARDSON. FRANK H. SCUDDER.

Middleboro' Shovel Co.,

MANUFACTURERS OF

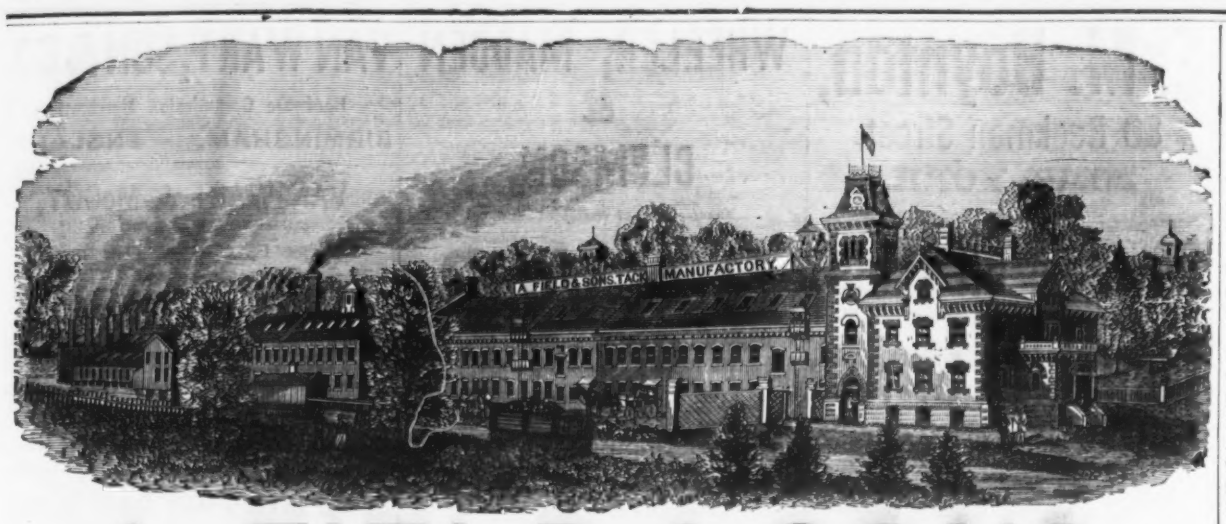
SHOVELS, SCOOPS & SPADES.

Office and Salesroom,

63 OLIVER STREET,

Works Middleboro, Mass. **BOSTON.**

J. CLARK WILSON & CO., New York Agents, 81 Beekman Street.



A. FIELD & SONS,

TAUNTON, MASS., Manufacturers of

Copper and Iron Tacks, Tinned Tacks,

SUPERIOR SWEDES IRON TACKS. for Upholsterers' Use, Saddlers' Supply, Card Clothing, etc., etc.

American and Swedes Iron Shoe Nails,

Zinc and teel Shoe Nails, Carpet, Brush and Gimp Tacks, Common and Paten: Brads, Finishing Nails
Annealed Trunk and Clout Nails, Hob and Hungarian Nails,

Copper and Iron Boat Nails, Paten Copper Plated Tacks and Nails
Fine Two Penny and Three Penny Nails, Channel, Cigar Box and Chair Nails, Leathered Carpet Tacks,
Glaziers' Points, etc., etc.

OFFICES AND FACTORIES AT TAUNTON, MASS.

WAREHOUSE AT 35 CHAMBERS STREET, NEW YORK, where may be found a full assortment of Tacks, Brads, &c. for the accommodation of the New York Wholesale and Jobbing Trade.

☞ Any variations from the regular size or shape of the above named goods made from samples, to order. ☜

Hopkins & Dickinson Manufacturing Co.,

FINE METAL WORKERS,

69 DUANE STREET,

Works, DARLINGTON, New Jersey. **NEW YORK.**

HAND MADE LOCKS

AND REAL BRONZE HARDWARE.

New and Artistic Designs for Private Residences Banks, Churches and Public Buildings.

THE FINEST QUALITY OF BRONZE METAL IS USED IN ALL GOODS OF OUR MANUFACTURE.

We are the Sole Manufacturers of the Patent "Secure Self Bolting Sash Lock," represented in above cut, endorsed by all the leading Architects and Builders. It draws the sashes together, prevents rattling or warping, is easily applied, and cannot be opened from the outside, and is therefore positively Burglar Proof.

Constant Ventilator.

Guaranteed to absolutely prevent Show Windows from Frosting or Sweating, and to supply Pure Air without Draft, in Bedrooms, Offices, Studies, Schools, &c., &c.

HANDSOME AS A WATCH.

Construction Entirely New.

Samples (Nickel and Gilt) sent by mail on receipt retail price, $2.50, inclosing instructions of a new and ready method for inserting in glass in five minutes. The difference between retail and trade price for sample will be allowed on next order.

T. W. BRACHER, 77 Greene Street, N. Y.

Birmingham Shovel Co.,

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Manufacturers of

LOWMAN'S PATENT CAST STEEL

SHOVELS, SPADES & SCOOPS

Of all Descriptions,

Without straps or rivets, of the best English and American Cast Steel. Every Shovel warranted. Printed lists of prices and discounts to be had on application at the office.

SOLE AGENT,

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OTIS PASSENGER —AND— FREIGHT ELEVATORS

For HOTELS, OFFICE BUILDINGS, STORES, WAREHOUSES, FACTORIES, MINES, BLAST FURNACES, &c.

OTIS BROTHERS & CO.

SOLE MANUFACTURERS,

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Licensed by United Nickel Company.

NEW YORK

Nickel Plating Co.

Works, 133 & 135 W. 25th Street,

Office, No. 18 Park Place,

ISAAC ADAMS, Jr., Prest **NEW YORK.**

Philadelphia Nickel Plating Works.

John Hartman,

No. 1049 Ridge Avenue, Philadelphia.

ELECTRO-NICKEL PLATING

On all Metallic Articles finished in the best manner.

Office, 615 Jayne Street.

BUSINESS ITEMS.

PENNSYLVANIA.

The blast furnace at Erie is making sixteen tons of No. 1 charcoal iron per day.

Dr. Williams, of the Baldwin Locomotive Works, has just returned from Brazil with a number of orders for locomotives for that country.

The Westinghouse Air Brake Works, Pittsburgh, which had been running half time for about eight months, have commenced to run full time.

Business is apparently good at the works of Messrs. Anderson, Maxwell & Porter, Pittsburgh. This company have recently finished a large tubular boiler for the new steel works of Messrs. Bolton, Myers & Co., of Canton, O. Also a very fine new engine, 12x24 inches, and two large boilers for a new steam flouring mill in Westmoreland county, and another engine, 18x24 inches, with two large boilers, for the sewer pipe works of Messrs. Sperry, Richie & Co., of Ohio, which works are being increased in capacity. Messrs. A., M. & P. have been running their works during the past summer and up to the first of October with a limited number of hands, since which time they have considerably increased their force.

The Etna and Onondaga Iron Companies, of New Castle, have been consolidated under a joint stock company, with Samuel Kimberly as president.

Messrs. Jones, Ingold & Co. are erecting crucible steel works at McKean Station, near McKeesport, which, it is expected, will be completed in about six weeks. The works will contain a 24-pot Siemens furnace, three steam hammers and four heating furnaces. The company are erecting knobbling furnaces, and will make their own iron. The steel at first will be hammered, instead of rolled.

The Hazard Manufacturing Company, of Mauch Chunk, propose, during the coming winter, to put up a new water wheel at their wire mill, and to further greatly improve their present facilities for drawing wire.

At Cramp's ship yard, Philadelphia, an iron hull is being constructed for the double-turreted United States monitor Terror. The monitors Otsego and Algoma are being broken up for the purpose of selling the iron in them, as they are past repairing. The steam collier, Pottsville, the last of the six colliers built for the Reading Railroad Company, is nearly completed. An English steamer, the Camena, which will run between New York and the Bermudas, is being furnished with extensive cabin accommodations. A ferry boat is also being built for the Windmill Island ferry.

The furnace of Messrs. Wister, Dauphin county, is to have the addition of a new hot blast. It is thought the furnace will be kept in operation all winter, as a contract has been made with the Pennsylvania Steel Company to furnish the Baldwin Works with 2000 tons of pig iron.

The Pittsburgh Steel Casting Company are making from 18,000 to 20,000 steel guards for mowers and reapers per annum for a Rockford, Ill., firm. The company is putting in a Siemens melting furnace for 24 pots. This will greatly increase their facilities. They make steel castings by the Hainsworth patent process. The works are running with a full set of hands, and turning out some very heavy castings.

MASSACHUSETTS.

The enterprising Boston hardware firm of Macomber, Bigelow & Dowse, are now occupying their new store, which has 100 feet frontage on Oliver street, 75 feet on Purchase street, and covers one-third of an acre of ground; 450 running feet of wall is shelved and stocked with American, English and German shelf hardware, while the basement is used for storage of bulky and heavy goods. The counting room and private offices are commodious and convenient. The sample room is well lighted by sky lights, which show to good advantage their fine assortment of samples, among which were prominent the Hart, Bliven & Mead Mfg. Co.'s full line of goods; P. & F. Corbin's locks; Landers, Frary & Clark's table cutlery; American Shear Co.'s pocket cutlery; Wheeler, Madden & Clemson's saws; all of which they sell at the manufacturers current prices.

The 10,000 trowel bayonets are well under way at the Armory, Springfield, but their cost mounts up heavily, and it is reckoned doubtful if another lot is made. The trowels will not be used for digging when on the gun barrel, for fear of bending the gun, and half the length of the trowel is knife-edge for convenience in cutting roots, kindlings, etc. The joint on the trowel handle has been quite troublesome, on account of the necessity of a perfect fit.

The new skate business is brisk with the Florence Sewing Machine Company.

The Beverly Machine Company, Beverly, are building a lot of the Marcy patent steam shovels for M. D. Marcy, of Worcester, a new patent, and said to be a desired improvement. They are also building the Richards' ship steerer.

The Ames Company, at Chicopee, have the manufacture of the new screw machines well under way, and expect to complete the entire contract of 300 in about a year. Several new hands have been employed for the work, including experienced workmen from Worcester and other places.

The Sewing Machine Company, of Florence, have received the contract for casting the large steam pumps made by the Valley Machine Company, of Easthampton.

Business is lively at the works of the Russell Cutlery Company, Turner's Falls; 450 hands are now employed, and the product for the last six months has been unusually large.

The copper has been received at the Armory at Springfield for the remaining 20,000 of Martin's cartridges, and work will be begun upon them at once. The lack of machinery, designed particularly for their manufacture, hinders the production somewhat.

The car shops of the Norwich and Worcester Railroad are running on full time, and with a full force.

The Clement & Hawkes Manufacturing Company, at Northampton, are running their works over-time several days in the week to enable them to keep pace with orders. In the tool department shovels are made a specialty, and the daily product is now 25 dozen. Hoes are also extensively manufactured, and the principal product from August 1 to January 1 is for the use of the Southern planters, while during the remainder of the year Northern hoes are made. In the machine department the company are at work on an extensive contract for furnishing lathes and other machinery for the new brass works of Hayden, Gere & Co., of Haydenville. The number of hands at present employed is 75, and the prospects for a successful winter's business are flattering. The Anchor Tape and Webbing Company, which began operations in a portion of the hoe company's building about a year ago, also report fair trade sufficient to keep busy about 75 hands, many of them girls.

CONNECTICUT.

The Birmingham Iron and Steel Works, at Birmingham, are among the most extensive in the State. The buildings cover more than two acres of ground, and the capital employed is $200,000. The usual force employed is 185 men, but owing to the dull times only 80 are now at work. The chief articles of manufacture are bolts, wire, springs and axles.

The Birmingham Shovel Company will soon erect a new building, and their present quarters will be occupied by the Optical Needle Company.

A Brooklyn firm is soon to commence manufacturing iron scoop shovels of the whole-eye pattern, under a license from the Birmingham Shovel Company.

MAINE.

The iron works, at Pembroke, are receiving a full stock of coal and iron.

The Hinckley & Egery Iron Works are running a force of about sixty-five men, which number will be still further decreased for the winter.

The Spike Company, at Camden, is the only concern in the State that makes heads and point spikes by machinery. Twenty-five hundred spikes per day are turned out, and one hundred can be made in fifteen minutes.

ILLINOIS.

A wire mill is to be established at Chicago by a couple of gentlemen who have the matter in hand, and it is proposed to have it in operation in the course of a month or six weeks.

The Springfield Iron Company are actively employed in the manufacture of silicon steel rails, and are running on full time, with numerous orders ahead. They are just completing a large order for the T., W. & W. R. R., and are preparing to go to work on a two thousand ton order from the Union Pacific Railroad Company.

The North Chicago Rolling Mill is running full, double turn, employing in all 1500 men. Their daily product is 120 tons of steel rails, 120 tons of iron rails, and 100 tons of pig iron. The Bessemer pig of their own manufacture is better for their purposes than any they can buy, but they have been obliged to purchase about 10,000 tons of other pig this year. The mill has been running full all the year, and has lost less time than has been usual in previous years.

The Portable Car and Track Company, of Chicago, are furnishing their cars and tracks for coal yards in this city; also 60 cars for the Cincinnati & Southern R. R. construction, and 20 cars (4 ton narrow gauge), for the Howard Coal & Iron Co., of Boyd county, Ky.

The Union Foundry Works, Chicago, N. S. Bouton & Co., have about competed their contract for the iron work of the new Custom House. They are engaged almost exclusively on architectural iron work, and are employing 240 men.

OHIO.

The works of the Whittemore & Miles Manufacturing Company, at Akron, have been running their works during the past dull season to their full capacity in the manufacture of sections (or knives) for mowing or reaping machines. They employ eight trip hammers of various sizes, and a number of very large sized grindstones. The capacity of these works is immense, consuming a very large amount of the best quality of sheet steel and bar iron. They have a peculiar process of hardening the sections previous to finishing.

At Cleveland, the King Iron Bridge Company employ 175 hands in their establishment, beside an outside force.

Ridgway Iron Works, Youngstown, better known as the Valley Mill, and owned by Wick, Ridgway & Co., manufacturers of railroad iron, was built in 1871 and 1872. The entire mill is 670 feet long, rail mill 110 feet wide, and the puddling mill 60 feet wide. These works are now running single turn only, making from 90 to 100 tons of rails per day. The full capacity of the mill is, when running double turn, about 1000 tons of rails per week. At the present time about 500 men and boys are employed about the mill, and the monthly pay roll foots up some $20,000.

The stacks of the Wilson Furnaces, at Jackson, are up, and furnaces are fast approaching completion.

Rumor has it that ground will soon be broken for a new steel works at Cleveland.

Messrs. Bolton, Myers & Co.'s new steel works, at Canton, are rapidly approaching completion, and will probable go into operation about the 1st of December.

MISSOURI.

The extensive car works at St. Charles, that began operations in April last, are doing a fine business. About 200 cars for the Iron Mountain road have been built, and are pronounced first-class.

The Scotia Furnace, at Leasburg, Crawford county, made 2934 tons of pig iron during the four months ended August 31st. This is a charcoal furnace, 9½ feet across the boshes.

The St. Louis Bolt and Iron Company have just taken an order for one hundred and fifty tons of street rails for La Salle, Illinois. Six of the most important competitors of St. Louis were represented, including Chicago, Pittsburgh, Cincinnati, and other points.

GEORGE GUEUTAL & SON,

39 West 4th St., New York.

IMPORTER OF

Wood Screws, Steel in Sheets,

BAND SAWS, TOOLS FOR BRAZING, &c.

Bed Screws, Pin Hinges, and Wire Nails a Specialty.

H. W. PEACE,

MANUFACTURER OF

SAWS OF ALL KINDS.

FACTORY, WILLIAMSBURGH, N. Y.

THE SILVER STEEL

DIAMOND CROSS-CUT SAW.

$1.50 Per Foot.

Patent Secured

PATENT HANDLES AND GAUGE INCLUDED

THIS new Saw, which is destined to take the place of all Cross-cut Saws in point of SPEED AND EASE, is manufactured by E. C. ATKINS & CO., Indianapolis, Ind., who are the

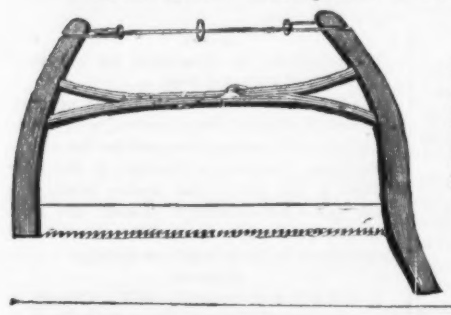
SOLE MANUFACTURERS FOR THE UNITED STATES.

So confident are we that this is the best Cross-cut Saw in the market that we CHALLENGE THE WORLD. Orders promptly filled.

E. C. ATKINS. B. KNIPPENBERG.

E. C. ATKINS & CO.
Saw Manufacturers and Repairers, Indianapolis, Ind.

Hankins' Elliptic Forked Saw Frame..



Patented June 28th, 1870.

The annexed engraving represents HANKINS' ELLIPTIC FORKED SAW FRAME, which commends itself to the trade for its simplicity of construction. The Forked Brace being all in one piece, without any center bolt, secures for the Frame great strength and durability. These Frames are put up with my best Webs, marked "No. 40, Harvey W. Peace."

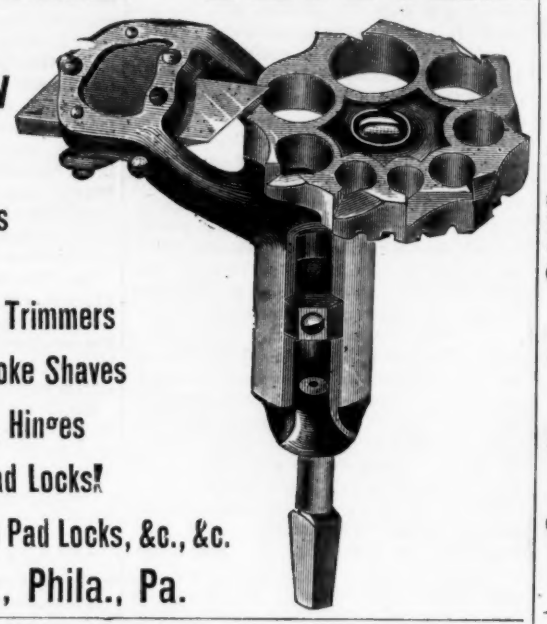
HARVEY W. PEACE,
VULCAN SAW WORKS,
WILLIAMSBURGH, N. Y

Lloyd, Supplee & Walton,

HARDWARE FACTORS.

MANUFACTURERS OF

Bonnev's Hollow AUGERS.



Stearn's Hollow Augers and Saw Vises.

Bonnev's Spoke Trimmers

Double Edge Spoke Shaves

Adjustable Gate Hinges

Scandinavian Pad Locks.

Flat Key Brass and Iron Pad Locks, &c., &c.

625 Market St., Phila., Pa.

R. E. NEIL, President. H. A. LANMAN, Treas. & Manager. F. G. WADDEL, Secretary.

COLUMBUS BOLT WORKS,

COLUMBUS, OHIO,

Manufacturers of BEST NORWAY IRON

Carriage, Steeple, Cone, Shackle, Elliptic, Shaft and Tire

BOLTS

All the different styles used by the manufacturers of the finest Carriages. Every Bolt warranted true to size and fit. Illustrated Price Lists mailed on application. Our facilities are unsurpassed for the manufacture of **Machine Bolts and Coach Screws.** Correspondence from Car, Bridge and Machinery Builders solicited.

J. FLINT & CO.,

Manufacturers of all kinds of SAWS and PLASTERING TROWELS, Rochester, N. Y.

A large Stock of **Cross Cut Saws** constantly on hand. Orders filled promptly. **Dietrich's Double Handle One Man Cross Cut Saw** made with any kind of tooth desired. Our patent method of grinding Hand Saws makes them superior to any in the market. Send for illustrated Price List.

E. M. Boynton,

80 Beekman Street,

NEW YORK,

Manufacturer of

Saws of all kinds.

Also Sole Manufacturer of

LIGHTNING SAWS.

Two Direct Cutting Edges, instead of one Scraping point.

Note extra steel and durability over the old V, outlined on M tooth.

I am willing and extremely anxious, on proper notice, to accept a Challenge from H. Disston & Sons, or any responsible Saw Manufacturer, and am ready to back my words with appropriate deeds and $500 expense, if beaten.

N. B.---With Hand, Billet or Cross Cut Saw, $500 on each.

E. M. BOYNTON.

BIRMINGHAM, ENGLAND

SAMUEL A. GODDARD & CO.,

Commission Merchants and General Agents, execute orders for British manufactures on the lowest terms, and collect and forward goods for a very moderate payment. Agents for the sale of North Staffordshire Iron of a standard quality.

RIEHLE BROTHERS,

Ninth Street, near Coates, Philadelphia.
New York Store, 28 Liberty Street.
Pittsburgh Store, 235 Liberty Street.

"Patented" Furnace Charging Scale.

Double Beam R. R. Track Scale, Compound Parallel Crane Beams, &c. Patented First Power Lever Wagon Scales. Testing Machines any capacity.

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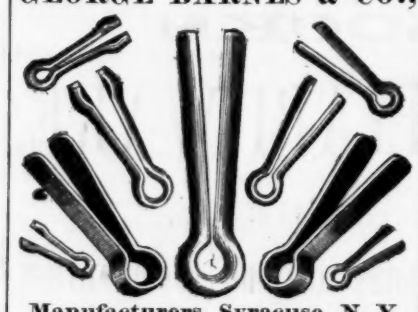

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Salesroom,

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BAND SAW MACHINES.

For Bevel and Square Scroll Work and Re-sawing. Manufacture six different sizes. Prices, $165, $210, $270, $260, $350, $425, and $1000. Also manufacture CARVING, SHAPING, FLUTING, ADJUSTABLE DOUBLE SPINDLE BORING, CARVED and SERPENTINE MOLDING MACHINES. Also, GENERAL and COUNTER-BALANCED OVAL TURNING LATHES for WOOD and BRASS TURNING, METAL SPINNING, etc.

CIRCULAR SAW BENCHES, SHAFTING PULLEYS, and HANGERS.

A large assortment of the best FRENCH BAND SAW BLADES, at greatly reduced prices. And a Machine that will set an ordinary Band Saw PERFECT in two and a half to three minutes.

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Manufacturers of Warranted Cast Steel

SAWS

of every description, including

Circular, Shingle, Cross Cut, Mill, Hand, Roberts' and other Wood Saws, &c., &c

Cast Steel Files

of the well known brand of

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I make a specialty of the LARGEST SIZES of **Circular Saws,** and call particular attention of lumber manufacturers to the following points of excellence:

Evenness of Temper.—The peculiar structure of my furnace subjects all parts of the saw to a DEAD heat, and when dipped in the oil bath secures perfect uniformity.

Perfect Accuracy in Thickness.—My saws are ground on a patent machine, automatic in its operation, grinding off the thick places upon the plate before the thinner parts are reached, and when the saw is removed BALANCES PERFECTLY, which is proof positive of the right accomplishment of the work.

Properly Hammered.—Great care is taken that no saw shall leave my works without due attention in this important particular. A saw too tightly strained upon the rim, or too loose in the center, cannot be successfully run—hence the importance of so hammering the saw as to effect equal strain in all its parts, and at the same time RUN TRUE. This department is under the personal supervision of myself, who has devoted over *twenty years* to the art of saw making.

I am sole proprietor and manufacturer of the celebrated **"Challenge" Cross-Cut Saw.** Price Lists of all kinds of saws sent on application.

JAMES OHLEN.

The Sugar Maker's Friend.

PRICE, $4.50 per hundred.

More agents wanted to canvass for the sale of **Post's Patent Galvanized Metallic Eureka Sap Spout and Bucket Hanger.** Samples, Circulars and Terms sent on receipt of 20c to pay postage. Address,

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At each of these places a complete assortment of samples of Hardware and Fancy Goods will be found, including all new descriptions. Sole Agents for

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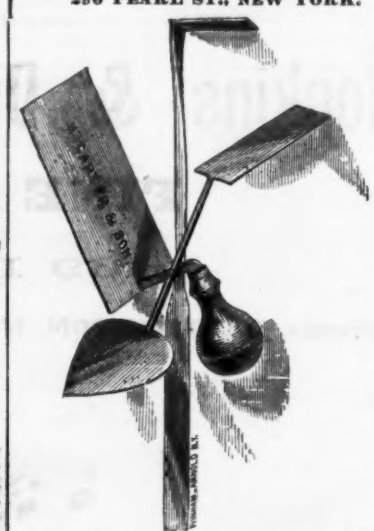
H. CARTER,

290 PEARL ST., NEW YORK.



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Manufacturers of and Dealers in all descriptions of Moulders' and Plasterers' Tools, and Dealers in General Hardware, Gilded Copper Weather Vanes, CARTERS' PATENT CARRIAGE LIFTING JACK, &c

GEO. M. EDDY & CO.,

Manufacturers of **Measuring Tapes,**
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Manufacturers of Paine's Patent Steel Standard Measuring Tapes, for Surveyors, Engineers and Mechanics requiring a correct measure of great length according to U. S. Standard. Also of Tape measures for the same trades, Lumbermen, Machinists, Tailors, Shoemakers, Dressmakers &c. Catalogues on application.

Backus's Patent Bit Brace

AND

Angular Extension BORER.

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SOLE MANUFACTURER OF

ANGULAR EXTENSION BORER.

Salesroom, 82 Chambers St., N. Y.

This tool can be used in any brace, at any angle, and also for straight work. Is the best and most convenient tool of its kind ever offered to the public. Eight thousand sold the first year.

Also Manufactures the Straight Extension

Backus's Pat. Improved Bit Brace.

The socket is arranged so that the strain does not come on the jaws, but on the square hole which fits the shank of the bit. The jaws attached to the sleeve hold the bit firmly in the square, and center it truly. The sweep is of wrought iron. The general finish of the stock is good. Its appearance is neat. Mechanics who have used it unanimously pronounce it superior to all others; and we offer it to the trade as the strongest, most simple, and quickest operating brace in the market. We manufacture five sizes. The number of inches of sweep corresponds with the commercial number of the list.

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Manufacturers of

TABLE CUTLERY,

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IN GREAT VARIETY.

Extra Hard Rubber Handle Table Cutlery of our own Manufacture.

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NORTHAMPTON CUTLERY CO.,

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Pen, Pocket & Combination Knives.

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Heinisch Tailor Shears, &c.,

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TABLE KNIVES AND FORKS OF **ALL** KINDS,

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And the "Patent Ivory" or Celluloid Knife. These Handles never get loose, are not affected by hot water, and are the most durable knives known. Always call for the Trade Mark "MERIDEN CUTLERY COMPANY" on the blade. Warranted and sold by all dealers in Cutlery, and by the MERIDEN CUTLERY CO., 49 Chambers Street, New York.

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Celebrated Silver Plated Goods,

FORKS, SPOONS, HOLLOWWARE, &c.,

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Price Lists and Discounts mailed on receipt of business card or reference. Address

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THE MILLER BROTHERS CUTLERY CO.,

Manufacturers of

PATENT FINE PEN & POCKET CUTLERY

WEST MERIDEN, CONN.

The **only Knives made** that are put together in such a manner that there is no strain on the covering or frail part of the knife. We warrant our knives equal in cutting qualities and workmanship to any made, and are acknowledged by English makers as the **Best American Knife.** We also make

NICKEL & SILVER PLATED POCKET KNIVES

which will not rust or become discolored when used as a Fruit Knife, and their cutting qualities are equal to any other knife. Orders filled from the factory or by

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GROUND EMERY, CORUNDUM AND FLINT,

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Table & Pocket Cutlery,

WARRANTED TO BE MADE OF THE BEST MATERIAL.

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Wood's Hot Water-Proof Table Cutlery.

Handsomest, Cheapest, most Durable Cutlery in use. Wood's Celebrated Shoe Knives. Butcher Knives a specialty.

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Full Concaved Razors, Wostenholm's Pocket Knives, Razor Hones, Russia Leather Razor Straps. Wade & Butcher's Razors, and Cutlery in general.

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PEN AND POCKET KNIVES,

MANUFACTURED BY AB *PEPPERELL,*

Aaron Burkinshaw. MASSACHUSETTS.

My Blades are forged from the best Cast Steel, and warranted. To me was awarded the GOLD MEDAL of the Connecticut State Agricultural Society; also a Medal and Diploma from the Mass. Mechanics' Ass'n Sept., 1860

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80 CHAMBERS ST. NEW YORK
ENGLISH HARDWARE.
WOSTENHOLM'S
IXL
POCKET KNIVES,
KNIVES & FORKS,
RAZORS,
SCISSORS, FILES, CHAINS
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George Wostenholm & Son,

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Celebrated I-XL Cutlery, Razors, &c

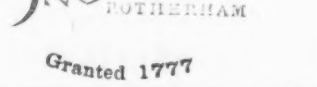
AGENT FOR

WALTER SPENCER & CO.,

Steel and File Manufacturers,

(Rotherham, ENGLAND.)

Corporate Mark.



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JOSEPH ELLIOT & SONS,

Manufacturers of Razors, Table Knives, &c.,

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CORPORATE MARK,

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CELEBRATED CUTLERY,

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The demand for **Joseph Rodgers & Sons'** productions having considerably increased, they have, in order to meet it, greatly extended their Manufacturing Premises and Steam Power.

To distinguish Articles of **Joseph Rodgers & Sons'** Manufacture, please to see that they bear their Corporate Mark.

Notice of Removal.

ASLINE WARD,

From 54 Beekman St. to No. 101 and 103 Duane St., N. Y

REPRESENTING

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CUTLERY AND RAZORS,

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FRED'K WARD & CO., SHEFFIELD.

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ROMER & CO.,

Established 1837.

Manufacturers of **Patent Brass Pad Locks for Railroads and Switches. Also, Patent Stationary R. R. Car Door Locks. Patent Plain and Sewing Machine Locks.**

141 to 145 Railroad Avenue, NEWARK N.J.

Illustrated Catalogues sent on application.

Patented Steam and Hydraulic, April 1, 1868.

EAGLE PACKING,

Of various sizes for **ENGINES and PUMPS,** manufactured by JAMES GLANDING & CO., No. 115 Queen St., Philadelphia. What the proprietors claim for the Eagle Packing: 1. Its general adaptation to all purposes for which packing is used. 2. Its durability. It will outlast any other article in use. 3. Its cheapness. It can be furnished to the consumer at a lower rate than any other packing

PHILADELPHIA CORRESPONDENCE.

PHILADELPHIA, Nov. 16, 1874.

The feature of the week has been the closing of the Franklin Institute Exhibition, which has been, from first to last, a complete and perfect success. To exhibitors it has proved an effective means of stimulating trade and bringing orders; to the public, an unusual source of interest and gratification; to the officers of the Institute, a source of profit which, according to the statement, enables them to liquidate a debt of thirty-eight year's standing, and, above all, to the Centennial enterprise just the required stimulus which was wanting, and the application of which will ensure the success of that national exhibition. In his closing address the president of the Institute, Mr. Coleman Sellers, thus referred to the Centennial, and its connection with the exhibition just held, as follows:

"The year of the great Centennial is close upon us. Little by little over the land has grown the interest in it. Slowly, but surely, are all our people awakening to the appreciation of the fitness of the celebration of a nation's birthday by a display of a nation's greatness, of a nation's growth in contest with the whole world.

"On the ground where one hundred years ago stood the capital of the infant republic, in the city where our liberty had birth—the objects that will claim space in that great exhibition are now being made, not here only, but over the whole civilized world. What can be done by the Franklin Institute as a society, or by its members as individuals thereto, should tend toward increasing the success of that great undertaking.

"A wholesome tariff has shielded our workmen until home competition in well organized business has enabled us to export what we used to import. But the Franklin Institute, as I have said, founded to encourage the mechanic arts, needs your aid, your encouragement, and your preference for all the good work our mechanics can do."

The records of the exhibition show that nearly 300,000 visitors attended it, and that the money receipts were $90,800, an amount which shows the interest which is taken in such things by the general public.

One effect of the dull times at home has been to stimulate trade with abroad, and it is encouraging to see this looking toward South America, the natural market for our manufactures. In this connection we hear of the return of Dr. Williams, of the Baldwin Locomotive Works, from Brazil with some large orders for locomotives. It is but a short time since the same gentleman was taking orders in Russia for engines. We also hear of Mr. Francis, of William Sellers & Co., being on the west coast of South America with good success for the house. This matter of South American markets we have very frequently alluded to as demanding the attention of the iron trade. If locomotive works and machine tool works find it sufficiently developed to furnish a demand for their products, how many steps there are in products of the United States far below these for which the same country would furnish a ready market.

The railroad literature of our country is not of sufficient standing to have acquired great volume, and the following copy of the minutes of the first railroad meeting held in the United States, makes an interesting contribution to it. This meeting was held on the 14th of January, 1828, at the Court House in Mt. Holly, N. J. The following will be found interesting as being a copy of the original minutes of that meeting:

CAMDEN AND AMBOY RAILROAD.

At a large and respectable meeting of the citizens of the State of New Jersey friendly to the proposed railway from Camden to Amboy, convened at the Court House in Mount Holly on the 14th of January, 1828, pursuant to notice, John Black was appointed president, John Dobbins, vice president, and Charles Stokes and James Newbold were appointed secretaries.

The object of this meeting having been stated to be for the purpose of promoting the above enterprise, and adopting suitable measures to insure success, William Cox, John Beatty, George Haywood, Chalkley Atkinson, Strange N. Palmer, Anthony Sharp and Jeremiah H. Sloan were appointed a committee to draft resolutions expressive of the sense of this meeting on the subject.

The committee reported the following resolutions, which were unanimously adopted:

Resolved, That, deeply impressed with the importance of internal communication, this meeting conceive that sound policy requires that they should be extended throughout our Atlantic States.

Resolved, That situated as New Jersey is between the two great emporiums of the Union, and with great resources of her own to sustain the undertaking, it is a reproach to the enterprise of her citizens that a line of internal intercourse has not been extended across her territory.

Resolved, That the application to the Legislature for a railway from Camden to Amboy is highly approved by this meeting, and that we conceive it entitled to their most favorable consideration, whether it be considered with reference to the local interests of our own State or as one of the most important links in the great chain of internal intercourse.

Resolved, That this meeting most earnestly recommend to the Legislature the passage of an act incorporating a company with a liberal charter, for the construction of a railway from Camden to Amboy.

Resolved, That a committee of four persons be appointed to represent the wishes of this meeting to the Legislature, and to take such steps as they shall deem expedient to bring the subject fully and fairly before them.

Whereupon Samuel J. Read, Abraham Brown, Isaac Wilkins and Jeremiah H. Sloan, Esqs., were unanimously appointed to constitute said committee.

It was then, on motion,

Resolved, That this meeting do approve the memorial now read, addressed to the Legislature, praying the incorporation of a company for the construction of the said railway, and recommend the circulation thereof for signatures.

Resolved, That John Clement, Benjamin B. Cooper, Samuel Haines, Samuel Ellis and Samuel Lanning, of the county of Gloucester; John Beatty, Clayton Newbold, Anthony S. Earle, Chalkley Atkinson and Joel Hollinshead, of the county of Burlington, be appointed to circulate the said memorial for signatures, and also to appoint such persons in the adjoining counties as they shall deem proper to circulate the same.

Resolved, That the thanks of this meeting be given to the president, vice president and secretaries, and that the proceedings thereof be signed by them and published.

Signed by the officers and published in the New Jersey *Mirror*, January 16, 1828.

Most of the citizens mentioned as taking part in that meeting have passed away, but it is yet within fifty years that this meeting was held, in which was taken the initiatory step in that system of railways now including over 70,000 miles.

While Camden and Amboy, fifty years ago, was only being suggested, the same concern now, or its successor, takes the managers of other roads and its own over the distance between the two great emporiums of the country in an hour and three-quarters. On Thursday last a special train containing Commodore Vanderbilt and other railroad officials, left Jersey City at 8 09 a. m., and arrived here at 9 56 a. m., having stopped at Newark and one or two other points on the way, thus making the 96 miles in one hour and forty-five minutes. Leaving here, the run to Baltimore was made in two hours and fifteen minutes, and the return trip of the same distance in a few minutes less. This is pretty lively railroad time, and shows that everything is in first-class condition, or the magnates of the business would not jeopardize themselves at such a rate of speed.

The colliers of the Reading Co. are proving of very great convenience and value in distributing coal from this port to New England. Thus the collier Berks, Capt. Worth, left this port for Fall River, Mass., at noon of November 4th, where she discharged 600 tons of coal, and returning reached this city at four o'clock on the afternoon of the 8th, thus making the round trip in four days and four hours. This is claimed among the collier captains to be the quickest trip on record. The meetings of the various branches of trade for revisions of the tariff are not regarded with favor by manufacturers here. It is, they think, bad policy, especially at this time, to begin tariff tinkering. The only safeguard now for the revival of industry is in the maintenance of all the tariff we have got, and past experience shows that we have never gone into a revision of the schedule without ending in a reduction of some duties, and often of many important ones. Hence, until we shall have entirely recovered from the effects of the panic, it would be well for us to let the present provisions of the tariff stand.

Coal Mining Troubles.

WILKESBARRE, Nov. 17.—The reign of lawlessness in the coal regions appears to be continually growing worse, caused, perhaps, by the fact that most of the perpetrators of the assaults and murders escape capture and punishment. At Carbondale, on Saturday night or Sunday morning last, two men were murdered and three severely assaulted, one of whom will probably die. Patrick Padden, a miner at the Coalbrook Colliery, was found upon Dundoff street, in that city, on Sunday morning with two bullet holes in his head, and badly bruised about the body. His head was frozen to the ground, the hair having dragged in a pool of blood and water which had congealed. He was not quite dead when found, but expired in the afternoon. They had quarreled with some persons on Saturday afternoon. Michael McNally was found dead the same morning upon the railroad bridge, near the look-out, in the same city. He was about 20 years of age, and had evidently been put there. Michael Begland was found about the same time with his throat cut. He was dressed in an old suit of miner's clothing. When last seen on Saturday night he had on a good suit of clothes. He is still alive, and will probably recover. A boss at the Erie breaker was waylaid on Saturday night and had his arm broken, and received other injuries, but escaped with his life. His name has not been ascertained. About two miles below the city, at the Carbondale mines, a man, whose name is not yet known, was found nailed to a beam, in a lonely and unfrequented place. Strong nails were driven through his coat at the wrists, and his pantaloons at the ankles, and in this position he was undoubtedly left to die, but by a mere accident was found and released. At Scranton, on Sunday morning, a newsboy found the body of Michael Kearney lying at the foot of a steep embankment. He was dead, and had evidently been thrown there. A negro testified at the Corner's inquest that he heard cries of murder on Saturday night, and saw a crowd of men beating some one, and finally carry the body toward this embankment. No arrests have yet been made in any of the above cases.

CHICAGO, Nov. 17.—A strike has been prevailing among the coal miners in St. Clair and Madison counties, Illinois, for several weeks, and there has been more or less apprehensions of a riot for some time past. Requisitions for arms were made upon the Governer of the State last week, and in all instances complied with; but aside from the burning of the stagiug in one shaft, no violence has been attempted by the strikers. To-day the strike virtually ended. A mass meeting of the miners interested was held at Eight Mile Stone, in St. Clair county. About 1000 men were in attendance. The meeting was orderly and well conducted. A resolution was passed directing all miners who could get five cents a bushel to go to work. This means that all will go to work if they can get three cents a bushel. Such was the informal understanding of the meeting, and it is this difference of one cent per bushel which has been in contest between the men and their employers. The submission of the miners was the result of a report submitted by a committee appointed at a previous meeting to ascertain the number of "blacklegs" at work in the mines. Yesterday they reported 100, and to-day 320. It was plain that at this rate the places of the strikers would soon be filled unless they succumbed, and they resolved to do so. The arms sent by the State authorities served to protect the men at work, and doubtless had much to do with the end of the strike.

Cheap Labor.

The Free Employment Office, Bowery Branch Young Mens Christian Association.

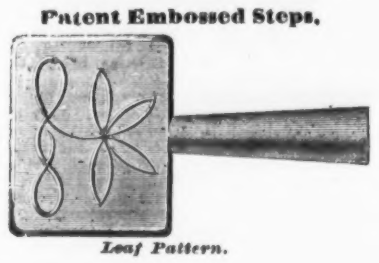
To the Editor of The Iron Age: We have a registered list of decent men who are willing to work through the winter for very small wages, and also a large number of men who will work for the winter for their living only. Address,

JOHN DOOLY, 134 Bowery.

[We know Mr. Dooly and the institution he represents, and can assure such of our readers as may be interested in the above notice, that his representations are make in good faith, and can be accepted with entire confidence.—*Ed. The Iron Age.*]

H. D. SMITH & CO., PLANTSVILLE, CONN.

Patent Embossed Steps.

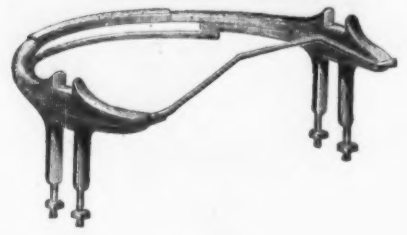


Leaf Pattern.

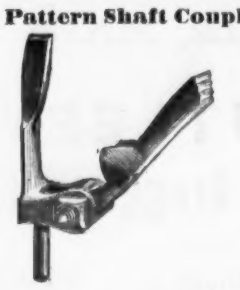
King Bolt Yokes.

Established 1850.

No. 6 Fifth Wheels.

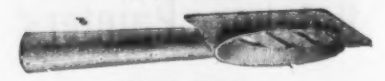


1871 Pattern Shaft Couplings.



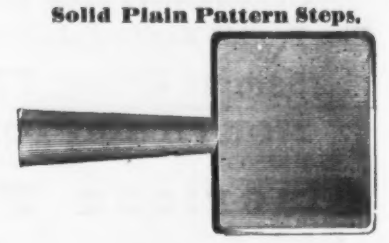
Patent Cross Bar Steps.

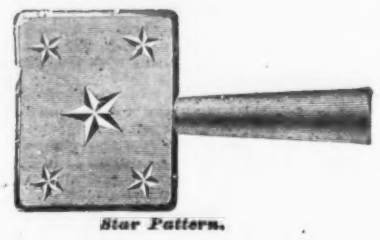
Upper View.



Lower View.

Solid Plain Pattern Steps.





Star Pattern.

Smith's Improved Philadelphia Pattern Slat Irons.

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FORGED CARRIAGE IRONS.

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CLARK, SMITH & CO.,

Green Jacket Axles. FORT PLAIN, N. Y. Fine Carriage Springs.

MANUFACTURERS OF

English and Swedes Steel Springs, and Iron and Steel Axles.

Execute orders promptly for

Black, Bright, Tempered and Oil Tempered Springs,

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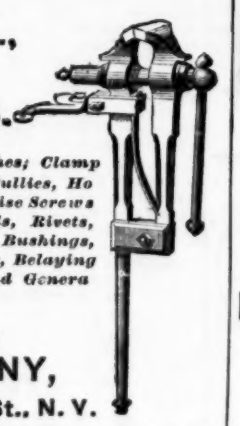

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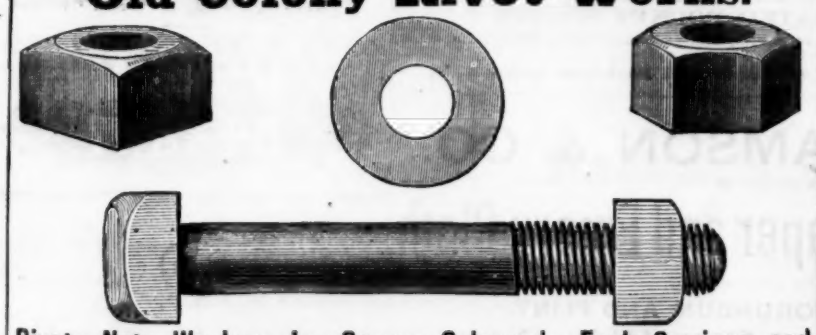

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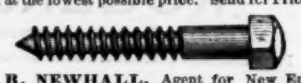

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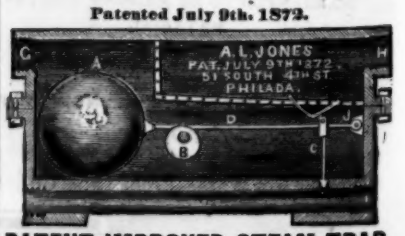

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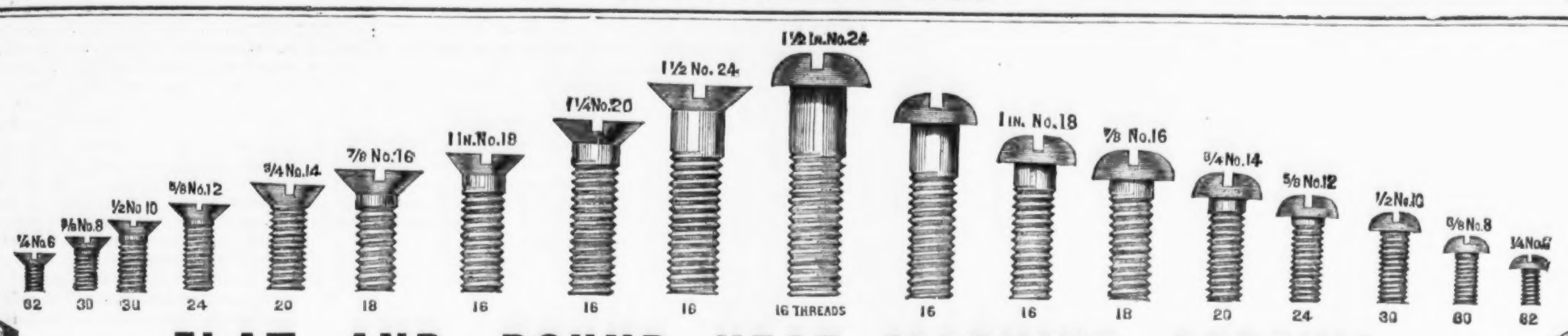

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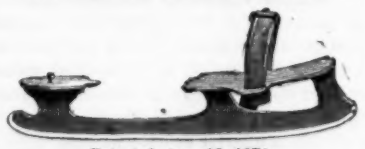

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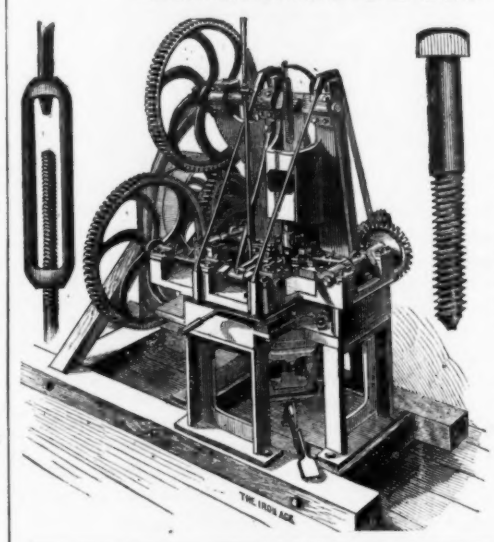

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New York, Thursday, November 19, 1874.

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A New Source of Coal and Iron for both North and South.

Numerous descriptions of the great wealth of Tennessee and Alabama in coal and iron have been hitherto published in this and other papers, until the reading public is well aware that one of the future great iron making centers of the United States bids fair to be located somewhere in this geographical section. Just how this great mineral wealth can be made practically available to the present iron manufacturing and coal consuming localities, without the creation of extensive works on the site of the mineral deposits named, has not, however, hitherto been shown, and it becomes a matter of interest and importance to learn that this is both feasible and attainable at small outlay. Looking at the present condition of trade, and accepting as probably true the statement that the prices for iron will not materially advance for some time to come, it becomes a simple matter of self-preservation to the industry to utilize those supplies which will permit a profit to be made upon present prices of product. From various causes, not here necessary to enumerate, the manufacture of iron, excepting with charcoal fuel and cold blast, has not been remunerative in the South, nor is there present reason to believe that capital will be speedily attracted from existing manufacturing centers more favorably located as to the consuming markets, and where large sums are already invested in working plant. To get the great iron wealth of the South to the iron works of the North and Northwest, and the equally valuable coals of the same region to the consuming localities further South, and now dependent upon more distant coal fields, is a problem of the near future, if not of the present. Among the numerous railroads projected previous to the panic, and which failed of immediate success because of that crisis, was the Chickasaw, Birmingham and Tuscaloosa Railroad, a line which deserved at the time a better fate, and to-day offers to foreign capital the very strongest inducements for legitimate investment, since it passes through a section of country which will supply cheap ores to the iron works of the Mississippi Valley, and cheap coals to the cities of the Gulf. How this can be done has been clearly pointed out to the company proposing the construction of the road, but never to the general public interested, and is therefore here for the first time given. Briefly, the route of the railroad here referred to is from Chickasaw, a point on the Tennessee River below all obstructions to navigation, and within direct steamboat communication with the Ohio and Mississippi Rivers, through Colbert, Franklin, Marion, Walker, Fayette and Tuscaloosa counties, to the Warrior River, opposite Tuscaloosa, Alabama. This is the main or trunk line, from which a branch road is projected, leaving at the Jagger coal bed of the Warrior coal field, and running to Birmingham, Ala. Not now, considering the whole route, it remains to be shown how a line of only sixty-eight miles in length would enable the development of the iron and coal of this region, and their transportation North and South, where they are required for consumption; and in this consideration some very interesting facts may be given. The cost of construction and equipment of this sixty-eight miles of road has been estimated by engineer's survey, and report to be under $2,500,000. The cost of mining the coal of the Jagger coal seam in the Warrior coal field is estimated, from present expenses, at 50 cents per ton, but is put at the same price as at Pittsburgh, viz., 87½ cents per ton. The cost of mining iron ore is put at present average in Alabama, viz., 75 cents per ton. How to get these minerals to market is the problem proposed to be solved by this road. Fifty-six miles from the coal field this road crosses, at Dickson, the Memphis and Charleston Railroad, giving an outlet at Memphis to the Mississippi River, with unobstructed and constant navigation to New Orleans and the Gulf; at Chickasaw, the Northern Terminus, 68 miles from the coal, a second water line of 1215 miles in length to New Orleans is furnished, and which can be counted on for 7 feet of water for nine months in the year.

The coal consumption of the Gulf cities and towns is reliably computed at 300,000 tons per annum, and that from Cairo down the river, including New Orleans, is reported by dealers at 600,000 tons; the entire supply of which is derived from Pittsburgh. The abundance of coal and the position of the strata in the Warrior coal field admit of greatly cheaper mining than at Pittsburgh, while the contiguity of the measures to the railroad lessens the expense of placing on cars. As to quantity, the estimated area of the Jagger seam is three square miles, with an average thickness of 19 feet, indicating by the same estimates 57,000,000 tons of workable coal.

As a broad principle in railroad transportation, the rate per ton per mile has been laid down at 1½ cents, although these rates are reduced by two or more roads in the country. The expense of water transportation for coal is variously estimated by the most extensive dealers of Cairo and the lower Mississippi at one mill per ton per mile, some ranging as high as one and a half mills, all, however, applying to flood stages of water, and not taking into account other obstacles. Assuming one and a half mills as the cost of water transportation, and one and a half cents as that of rail carriage per mile on a ton of coal, 600,000 tons of coal as the demand to be supplied in competition with Pittsburgh, it is to be demonstrated how this can be done from this coal field. At these rates by the Tennessee water line, and including cost of mining, this coal would reach Cairo at a cost per ton of $1·66, while Pittsburgh coal at the same point costs $2·16. At Memphis, by all rail route, this coal would cost $1·95, against Pittsburgh coal at $4. At New Orleans, the Jagger coal would cost $3·15, and Pittsburgh coal $4·50. A prominent Memphis coal dealer states that the lowest price for Pittsburgh coal delivered there since the war, exclusive of profit to miner and shipper, is $4 per ton.

If, then, 600,000 tons of Jagger coal can by these figures be delivered at Memphis at a cost of $1,173,000, it may be sold at what Pittsburgh coal costs there without profit to miner or shipper, and yet leave a profit of $1,227,000 in favor of the Jagger coal, and, while doing this, would pay a 7 per cent. dividend on railroad transportation. Further, the transportation from Pittsburgh has, in the view of practical river men, ceased to be a question of coal, and become one of lumber. So serious has the cost of lumber for barges become, that it is asserted that iron must shortly be substituted in this construction. Another great advantage possessed by this coal field for Southern supply is the absence of the necessity of stocking large quantities during high water to provide for demand in low stages of navigation, and requiring the investment of large capital. This, with Memphis as the outlet, is practically unnecessary. Assuming the cost of floating coal from Pittsburgh to Memphis to be $1·80 per ton, interest on stocks increases it to $1·92 per ton; and by the Tennessee water line to Memphis, at $1·08, interest would increase it to $1·18 per ton. Taking the estimated cost of transportation by rail *via* Memphis & Charleston Railroad, and the 56 miles of Chickasaw road to Dickens, at rates given by engineers, and comparing them with those by the Tennessee water line, we would have rates on coal and iron as follows: Cost of one ton delivered at Memphis by water, $1·18; cost of one ton delivered at Memphis, all rail, $1·22, giving land carriage cost so nearly equal to water that where the distance is materially shorter, as in this case, the former is preferable. In substantiating this, the statement is made that the Indianapolis & St. Louis Railroad has carried, under contract, pig iron from South St. Louis to Pittsburgh—a distance of 635 miles—for $6 per ton, being less than one cent per ton per mile. Comparing the water cost from Pittsburgh to Memphis, at $1·92, with that of the Jagger coal at same point *via* the Tennessee River at $1·22, we have a difference of 70 cents per ton in favor of the latter, which, on 600,000 tons, would give a difference in freight alone of $420,000.

Further, comparing the cost of Pittsburgh and Alabama coals laid down in Memphis, we find it to be: Pittsburgh coal, per ton, $4; Alabama coal, by Tennessee River, $2·06; Alabama coal, all rail, $2·09. Thus giving an actual profit of nearly 100 per cent. on the capital invested in mining Alabama coal, if sold in Memphis at only the cost of Pittsburgh coal in that market.

As to the quality of the Alabama coals, that has been long since settled by analyses which show, in comparison with three of the best Virginia coals, that it possesses more hydrogen than three, and more carbon than two, of these coals, and by Sir Charles Lyell's table, as follows:

Name of Coal.	Carbon.	Volatile Matter.	Ash.
Alabama	80·96	12·96	6·08
Pennsylvania	62·80	12·80	6·20
Maryland, George's Creek	76·76	16·03	13·22
" Frostsburg	74·38	15·13	10·34
Virginia, Black Heath	58·79	22·57	8·64
" Midlothian	53·33	33·25	14·14

This is deemed satisfactory as to quality. Analyses from the Jagger seam of the exact coal here discussed gives:

Volatile combustible matter	34·68
Fixed carbon	59·23
Ash	5·30
Moisture	·79
Sulphur	trace.
	100·00

This would indicate a coal superior to that with which it must compete from Pittsburgh. When taken into consideration with the saving in cost over the latter coal, it will be seen that in the development of the Alabama coals for the supply of the Southern cities alone, and not calculating on any export demand for the West Indian or South American trade, is found a source of great future wealth to that region.

Leaving entirely out of the question the practicability of making iron on the spot where these ores and coals are found in close contiguity, we will examine what the ores alone will cost in localities where iron is now made in quantity, and where ores are in strong request. Assuming Lake Superior ore to cost but $9·25 in Pittsburgh, which is, as furnace men know to their sorrow, below the actual figures, and Missouri ore at $8·50 per ton, also too low; it is claimed these Alabama ores can be supplied at the mouth of the Tennessee River at $3 per ton, putting them in Pittsburgh for about half what either Superior or Missouri ores cost. At Memphis, coal from Kentucky costing $6·25 per ton is used with ores of like cost, and with the advantages thus offered, Memphis should be one of our greatest manufacturing centers; coal and ore being attainable from the Alabama field cheaper than they can be delivered at St. Louis, or, say, $4 each per ton. In addition to other ores referred to in this region, are the brown hematites of Franklin county, as found in Russell Valley, where it is stated, at Russellville, twenty miles from Dickson, the junction of the Memphis and Charleston Railroad, is a mountain of iron ore thirteen miles in length by three miles in breadth, outcropping everywhere, and traceable in a solid stratum to a depth of 30 feet. Formerly this ore was worked in local bloomeries, giving a fine iron. An analysis gives:

No. 1. Peroxide of Iron	80·65
Sesquioxide Manganese	·26
Alumina	·09
Magnesia	trace.
Phosphoric Acid	·99
Water	12·37
Insoluble Matter	5·58
	99·87

Metallic Iron, 56·45 per cent.

No. 2. Peroxide of Iron	82·43
Sesquioxide Manganese	·63
Alumina	·77
Lime	trace.
Magnesia	trace.
Phosphoric Acid	trace.
Water	12·70
Insoluble Matter	3·21
	99·76

Metallic Iron, 57·71.

The estimated cost of delivering these and the Russell Valley ores at Paducah, Ky., is $3 per ton, and at Pittsburgh at not over $4·50 to $5 per ton, while if these are fair average analyses, the ores are relatively as good as the run of Lake Superior or Missouri ores. As to the abundance of the supply there is no possibility of doubt, while the fact that such a deposit of fuels for Southern consumption, leaving a profit when sold at cost of Pittsburgh coal, and of ores capable of being laid down in Pittsburgh at less than half the cost of Lake or Missouri ores, should be within reach of an uncompleted link of 68 miles of rail, costing $3,000,000, seems wonderful when considering that they are not utilized.

The iron industry in the whole Pittsburgh region, and throughout the Ohio and Mississippi Valleys, is crying out for cheap ores, and here would appear to be abundant supplies, which can be obtained at less than half the cost of the ores last noted. Pittsburgh alone is paying in ore freights considerably more annually than the whole outlay said to be necessary to develop and transport these ores to her works. The usual acumen and enterprise of the people of that region has prompted them to outlays far in excess of that necessary to construct such a line, with much less promising direct results, and the question in that case is by no means one of railroad profit, but one of cheap iron making material. The people of the Southern river towns would also save enough in cost of fuel yearly to make the development of the Alabama coal field a profitable investment. When manufactured iron is selling for less than pig metal cost two years since, and pig iron at not much more than the ore cost at the same time, while the cost of manufacture has not decreased over twenty per cent., it behooves the iron men of the United States to get their material where its expense will bear some relative proportion to the price of product.

For the facts and figures here given we are largely indebted to a manuscript report of Col. John L. Strong, made for the company projecting the road in question, and we have assurances from other and trustworthy sources that the data given may be accepted with confidence.

The Question of "Rapid Transit" in Cities.

It is a number of years since it was first discovered that the best interests of New York were suffering from the inadequate facilities for the transit of persons within the city limits. Since that time the matter has been vigorously discussed, numerous plans have been presented, several charters have been granted by the Legislature, and nothing of any practical value has been done. There is very little probability that any rapid transit company, which has a charter at present, can obtain the capital necessary to carry their scheme into execution, and it is safe to assert that any other plan, drawn up as these have been, will probably fare no better. We think that we can show, in a few words, both the reason for this and the remedy. Suppose that a railroad is projected between two distant cities. This is an engineering problem, and is recognized as such. The first thing to be done, then, is to find out, by surveys, and the collection of statistics, just what is required of the new railroad. When this is done, the details of the road are designed to meet the requirements, and the engineer finds, when these are perfected, that the finished plan is also complete. The promoters of rapid transit, so far, have done their work in a very different manner. Without knowing much more than that there is a demand for better transit facilities in New York, an inventor proceeds to draw up a plan, and then wonders that capitalists are not charmed with it. In this way scheme after scheme has been brought before the public, and so the belief has continually been gaining ground that the problem is an exceedingly intricate one, requiring some special inventive genius for its solution. Not a single rapid transit company, so far as we know, has ever employed engineers to collect the necessary data and work up the details, as would be done in the case of an ordinary railroad that was projected. This is the reason for the apparent deadlock in the rapid transit question, and it will only be broken by the action of engineers, who will present the matter in such a light that its salient points can be well understood by business men. We have hopes that some such action may be taken ere long. A committee of the Society of Civil Engineers was appointed, several weeks ago, to prepare a report upon "Rapid Transit and the Handling of Freight in New York." This committee, if they can collect the necessary statistics, will be able to present a report that is final and conclusive. It is reasonable to expect that they will do this in view of the high professional character of the committee, and of the society which they represent. We expect to receive from these gentlemen clear statements, well fortified by proof, in regard to all the important points connected with the matter. It is almost self-evident, for instance, that a railway will be a necessary part of the plan—and the committee, which is composed of experienced railroad engineers, will be able to settle definitely the best gauge for the tracks, the proper positions for the upper and lower termini of the road, the number of lines of railway required, and the streets in which they should be located. We expect, further, that this committee will settle upon the best arrangements for making a rapid transit railway easy of access to all parts of the city, will decide upon the character and location of the depots, the best designs for coaches, the most desirable kind of motive power, and will fix upon the number of trains required per hour, their speed and the proper rate of fare. These are general points to be settled with regard to any kind of railway, and the committee will doubtless next turn their attention to the kind of railway to be preferred—whether under the streets, through the blocks, or elevated in the streets—and when this is fixed, that they will indicate the best character of the particular kind that is chosen. In conclusion, the committee, after having laid down general principles that shall ensure the construction of lines of railway with the least possible obstruction to public and private property, with ample security for the comfort, convenience and safety of passengers, easy of access and of great capacity, and as economical as may be, in view of these requirements—will present careful estimates of the cost, operating expenses and revenue, which will aid capitalists in reaching a decision. We look for nothing less from a committee so able as this one, and we believe that this much will go far toward making rapid transit in this city an accomplished fact.

It is fortunate for the city that none of the schemes for which charters have been granted have been practically carried out, since these charters were drawn in such a loose and ambiguous manner as to afford no security that a proper return would be made for the valuable concessions that were granted. A board of able and conscientious engineers, however, may be trusted to consider the interests of the people in any plan which they may present—and we hope to receive from them a clear description of a system which shall not only commend itself to capitalists, but shall also be drawn in the interest of the city. A want of proper attention to the detail mentioned in this article will cause the report of this committee to retard, rather than hasten, the solution of the rapid transit problem—while a carefully prepared plan, in which all these details are considered, will be very likely to insure its success.

Extraordinary Welding.

We were shown on Monday last a very interesting specimen of blacksmith work—a bar of Bessemer steel to which five different kinds of iron and steel were perfectly welded, without changing its shape in the least. The bar was rolled into form at Thompson's steel works, in Jersey City, and is one-half by two and a half inches in the cross section. The welds were all made with Schierloh's Cherry-Heat Welding Compound.

First, a piece of Bessemer steel, cut from the end of the bar, was welded fast to it again, the heating and welding occupying eight minutes. On the reverse side of the bar a piece of fine cast steel was welded in six minutes. Further along on the bar a piece of blister steel was welded in eight minutes. This same steel cannot be welded with borax, as the high temperature needed with that flux makes it as brittle as cast iron under the hammer. Opposite this a piece of wrought iron was welded in six minutes, and further along on

the bar a piece of cast iron was welded in three minutes. This was a piece of the mold board of a plow. The bar, with its additions, was then ground and polished on the edge, so as to show the points at which the welded metals came into contact. No weld was visible on any one of them, and the difference in the metal could only be told by the color after polishing. This solves a great many important problems in iron manufacture, among others the welding of Bessemer scrap, the re-rolling of Bessemer rails, and the manufacture of iron rails with Bessemer steel heads. We speak advisedly in this matter, as we have personally determined the strength of the welds made with this compound by careful and thorough mechanical tests.

At the Delamater Iron Works, in this city, the scrap steel which accumulates about the shops is utilized in a very simple and economical manner. A pile of mixed steel is made, with a proper quantity of the welding compound sprinkled between the layers. The pile is then brought to a red heat, and worked into shape under a steam hammer. Mr. Crolius, foreman of the smith shop, says the welding is invariably perfect, and that the only objection to the scrap steel for tools is that, in making the piles, bits of steel of inferior quality sometimes get in, which are not suitable for the edges of cutting tools. With more care in selecting and piling the scrap, this difficulty would be entirely avoided.

We understand that the cherry heat welding compound is about to be tested in boiler work. It is proposed to lap weld boiler plates, by putting a ribbon of sheet steel between, and heating the edges with a blow pipe. Should the experiment be successful, riveting may be entirely dispensed with, and better boilers will be produced at a cost much below that of riveted work. We have given this matter editorial notice because of its great practical importance to many branches of the iron and steel manufacturing trades. A welding compound which, of our own knowledge, we can say will perfectly unite wrought iron, cast iron, cast steel, blister steel, chrome steel, Bessemer steel and malleable cast iron, each to any other, at a cost so low as to effect an important economy over borax in such operations as are possible with that substance, is certainly destined to effect a radical change in many departments of metal working.

The latest protest against the ratification of the reciprocity treaty comes from the manufacturing chemists. The Manufacturing Chemists' Association of the United States, representing an employed capital of over $50,000,000, held its semi-annual meeting in this city last week, and transacted such usual business connected with the interests of its members as came before it. Among other matters the proposed reciprocity treaty with Canada was discussed, and the following resolutions were adopted concerning it:

Whereas it has been brought to the notice of the Manufacturing Chemists' Association of the United States that there has been transmitted to the Senate a copy of a proposed reciprocity treaty with Canada, and whereas the provisions, in the opinion of this association, are inimical to the best interests of our people and to the revenues of the government; therefore be it

Resolved, That a knowledge of the foregoing treaty has filled us with alarm at the consequences which are likely to result to the productive industries of the country.

Resolved, That this alarm arises not alone from the fear of Canadian competition, but as well from the apprehension that Canada will, by the provisions of this treaty, become the great entrepot for the reception of goods from all parts of the world, to be legally smuggled into the United States.

Resolved, That this treaty inaugurates free trade in its most obnoxious form, and if the principle is followed up and applied in both countries, it may involve the necessity of collecting the entire revenues of the government by internal taxation.

Resolved, That as well from the foregoing consideration as from the fact that the negotiation of such treaties by the executive department and the Senate, involving the control over the collection of revenue from foreign imports, is manifestly an interference with one of the highest prerogatives of the House of Representatives, we are uncompromisingly opposed to it and to all others of like character.

Resolved, That these resolutions be printed, and that copies of them be given to each member of this association sufficient for his distribution to the Senators of his State at Washington, accompanied by such earnest individual protests as he may desire to make against the ratification of said treaty.

These gentlemen represent a large, important and growing industry, and their respectful protest against the ratification of a treaty which would seriously injure that industry should be accorded serious consideration at Washington.

A great deal of alarm is manifested just now in some quarters at the prospect of a diversion of trade from New York and Philadelphia to Baltimore by the railroad combination into which the Baltimore & Ohio Company refuses to enter. There is, we think, no occasion for alarm. Railroad combinations are no new things. We have had them every year for the last dozen years, and will probably have them more or less frequently for many years to come. The weak point in all such combinations is that it is impossible to make them permanent. If one road thinks it is not getting its full share of business and a little more, it will begin to cut rates, and when cutting once begins shippers of freights have things pretty much their own way for a time. In this instance, the refusal of the Baltimore & Ohio Company to enter the combination insures its speedy failure. The roads depending on the traffic of cities further north will not consent to a serious diversion of traffic to that city, and as soon as the competition is felt they will meet it, combinations notwithstanding. During the past ten years there has been a steady decline in the rates of freight by rail between the East and the West, taking the averages of years, and with the multiplication of competing lines they will decline still further, in spite of all the owners of existing lines can do to prevent it. If we only refrain from hedging the railroad monopolies round with legislative protection, we have no reason to fear their power; and to suppose that they, with all their grasping selfishness, will long adhere to a policy which drives traffic away from them, is absurd. They will do nothing of the kind.

New Publications.

THE AMERICAN IRON TRADE: A monthly journal of statistics, reviews and general information relating to the iron and metal trades. New York Iron Trade Publishing Co. $10 per annum; $1 single copy.

This is No. 1 Vol. 1 of a trade magazine, the value of which could not, with fairness, be judged from the first number. It is very well printed, and with care in the selection of matter for its pages can be made interesting, though as an eclectic monthly it will encounter the opposition of at least one successful and well established magazine. The statistical features of the first number are not very strong, but an improvement is promised in this respect if the iron masters will send in fuller returns. The editor has heard from 346 stacks, of which 192 were in blast. The following is given as a recapitulation of the product of the furnaces, reporting for the first six months of the current year:

	Tons of 2000 lbs.
Anthracite	273,070
Bituminous Coal and Coke	226,365
Charcoal Foundry	81,404
" Cold Blast	32,793
" Hot Blast	51,822
Total	665,455

As there were 681 completed furnaces in June last, the above total claims to represent the production of a little more than one-half of them. If those reporting represent a fair average, we may double the total given as the product of the country for the first half of the year, making, in round numbers, 1,331,000 net tons of pig iron, all grades. We give this estimate for what it is worth. As a general thing we think statistics are within fifty per cent. as accurate as the guess of a well informed business man who has a good idea of the course of trade.

A British Report on the Iron and Steel Industries of the United States.

The following is an abstract of that portion of a report on the manufactures and commerce of the United States from the British embassy at Washington, just published, which refers to the iron and steel industries. The reporter, Mr. Harris Gastrell, embodies in this statement the results of a detailed inquiry into these industries as at work in the Middle and Western States of the Union, which embrace the regions of Lake Superior, Missouri, Lake Champlain and Pennsylvania.

Regarding the Lake Superior region, he says: I find it stated that it extends from Lake Superior, by the Lakes Huron and Erie, into Ohio, New York and Pennsylvania, and by Lake Michigan into Wisconsin, Illinois and Indiana. It includes not only the Lake Superior ore deposits in Northwest Michigan, but also several local deposits of greater or less importance and development in the above named States. The first iron was discovered here less than thirty years ago, yet now the region contributes more than one-fifth of all the iron manufactured in the United States. A specimen collected for analysis in 1868, by breaking indiscriminately numerous fragments from all parts of the outcrop and from the loose masses, with the view of obtaining a safe average, afforded Dr. C. F. Chandler, of the School of Mines, New York, the following constituents: Oxide of iron, 89·21 per cent.; pure metallic iron, 64·60; oxygen with the iron, 24·61; oxide of manganese, a trace; alumina, 2·67; lime, 0·67; magnesia, 0·19; silica, 6·28; phosphoric acid, a trace; sulphur, 0·35; total, 99·37 per cent.

It is confidently stated that if mixed with ordinary care a much larger percentage of iron would be obtained than that indicated by the above analysis. In Green and Clark counties an ore is found to yield from 35 to 40 per cent. of iron, and as it contains more manganese than the New Jersey Franklinite, it is considered invaluable for spiegeleisen, and will consequently give Indiana an advantage for manufacturing Bessemer steel.

The capital required for the opening out of these mines may be fairly estimated from one example. The Saginaw mine was sold to the present owners for the sum of $300,000, independent of the improvements. This was considered an extravagant price to pay for it, and a most fortunate bargain for the parties who received that price. But it is a question now, since the new company has come in possession, whether the old company received a dime more for the property than it was worth. There was also in the terms of sale a royalty of, it is said, 50 cents a ton for improvements, &c. The output is about 30,000 tons, so that each ton bears about $1·50 for purchase alone. The monthly results of twenty-four mines in the State of Michigan, a near approximation to average results, are given in the following figures: Number of men employed, 4032; one month's pay roll, $273,700; one month's total disbursements, $374,633.

Production of ore in 1873: Tons, 1,197,000; worth at the mines, $8,012,250; multiplying the monthly disbursements by twelve, the yearly gain would be £3,516,654.

As to the wages, it appears that piece work cost $1·14 per ton. The rate paid for mining averaged, according to the nature of the work, 40c. to 50c. per ton, and for drilling about 65c. per foot. The men were paid $2 to $2 50 a day. It was expected that these prices would be reduced about 20 per cent. for the autumn and coming season, or, say, the $2·50 men to $2, and the $2·25 and $2 to $1·75. The cost of production, calculated at Marquette, the shipping port on Lake Superior, was stated to be from $2·50 to $6 per ton. The average first cost of the whole district for 1873 probably was at the bank $2·64, and at Marquette or other shipping points $4·14, being an addition of $1·50 for freight charges. Some have asserted that the average at Marquette for the district was even as low as $3·50 per ton. Others estimated the average at $4·50. The Lake Superior mines sell their 67 per cent. hematite at $4 per ton, on board at Marquette in 1871, whilst the 67 per cent. ores was sold at $5 to $5·25 per ton. In 1873 the price on board at Marquette, of the best ores of 67 per cent., was about $8·50, and at furnaces about $8, whereas other No. 1 ores were sold at $7·25, and the No. 2 ores at $3 to $3·25.

The declared shipments of Lake Superior ores were, according to the Marquette *Mining Journal*, in 1873, 1,178,879 gross tons, against 952,055 gross tons in 1872. Some of the ore mined in 1873 was not shipped. Moreover, in order to obtain the aggregate production, the quantity of ore used in making in the Lake Superior district 71,507 tons of pig metal in 1873, against 63,195 tons in 1872, must also be taken into account. One-half, viz., 81,630 tons, of the supply of Pittsburgh in 1872 was from Lake Superior. In that year Pittsburgh received only 4010 of local ores, and drew nearly 170,000 tons from Lake Superior, from Iron Mountain, Missouri, and Lake Champlain. But it "is probable that hereafter a greater percentage of native ores obtained in Western Pennsylvania and the Virginias will be used in the manufacture of pig iron at Pittsburgh and vicinity. In August last, a local iron journal stated that a number of furnaces were already using these nativeores, and others were about to do so."

Leaving a separate description of the other regions for the present, I find that a return just published shows that Pittsburgh received, in 1873, as many as 347,380 tons of ore by the river and the railways. Of those, the native ores were said—strange anomaly—to be about 9000 tons. From a table classifying the year's production of all ore producing States, and prepared for the census of 1869-'70, I glean the following figures: Establishments at work, 420; hands employed, 15,022; capital invested, $17,773,935; wages paid, $6,628,022; cost of materials, $1,279,563; quantity of ore produced, 3,395,718 tons; value of $13,204,138. The average earning of each hand per annum is $456, ranging from $630 in the Lake Superior district to $422 in Pennsylvania. The cost of labor per ton of ore appears to be over all the States about $2, and the average cost of materials about 37c. In 1871-'72 the following were the wages of the different classes of operatives in New Jersey, who beside had a house and garden:

	£ s. d.
Common miners	$1·40 — 0 5 7 per day.
Better, "	1·55 — 0 6 2 "
Best, "	1·75 — 0 7 0 "
Foremen, "	1000—200 0 0 per annum.

The Lake Superior ores sold, in 1873, as follows:

	Red Specular. 64 to 66 ℘ ct.	Magnetic. 60 to 65 ℘ ct.	Hematites. 50 to 55 ℘ ct.
Cleveland	$12·00 to 13·50	$11·00 to 12·50	$9·00 to 9·50
Pittsburgh	15·00 to 17·00	14·00 to 16·00	12·00 to 13·00
Mah'g Val.	14·00 to 16·00	13·00 to 15·00	11·00 to 12·00
Chicago	11·00 to 12·50	10·00 to 11·50	8·00 to 8·50

And the prices of this year will probably average for the red specular and magnetic ore from three to four dollars less per ton at each point. There will in all likelihood be no demand for the hematites.

The first steel rails rolled in the United States upon order, in the way of regular business, were rolled by the Cambria Iron Company, at Johnstown, Penn., in August, 1867, from ingots made at the works of the Pennsylvania Steel Company, at Harrisburgh, Penn., and by the Spuyten Duyvil Rolling Mill Company, at Spuyten Duyvil, New York, early in September of that year, from ingots made at the Bessemer Steel Works, at Troy, New York, then owned by Messrs. Winslow & Griswold. Bessemer works, for the conversion of steel and the rolling of rails, are now in operation at the following places: Troy, New York; Johnstown, Pennsylvania; Harrisburgh, Pennsylvania; Bethlehem, Pennsylvania; Newburgh, Ohio; Chicago, Illinois (two separate establishments); and Joliet, Illinois. The Pennsylvania Steel Works at Harrisburg are building a new plant, to be completed in 1874, which will double their present capacity. The Edgar Thompson Steel Works, near Pittsburgh, Pennsylvania, are in course of erection, and it is expected will be finished in 1874. The total annual capacity of the eight Bessemer works now in operation is about 170,000 net tons of rail; to which add Edgar Thomson and new plant of Pennsylvania Steel Works, and the total capacity of the Bessemer works of the United States at the close of 1874, may be placed at 222,000 net tons of rails. An elaborate account is given of the comparative merits of the English and the American system of manufacture, and the cost of erecting works is given as follows: The cost of Bessemer works with two of the five-ton converters and capacity for 100 to 120 tons a day, at from $250,000 to $300,000, inclusive of circulating capital. Last autumn I was informed on the best of authority that the following would be a fair estimate of the cost of constructing and starting Bessemer works in a thorough and solid manner: Bessemer plant of two five-ton converters, complete and ready to start, 150 tons capacity, $300,000; bloom and rail mills, $300,000; capital for business, $150,000; total, $750,000. This amount of capital is not, however, usually considered necessary, although works constructed and fitted up at that high cost may be in the end more economical than less costly works, provided too much capital is not sunk in the non-reproductive or less directly reproductive parts. Algerian and Bilbao ores had been imported as an experiment, but $20 per ton at the furnace was too costly, and authorities are now satisfied that the irons of the United States are sufficiently pure for the Bessemer purpose. It was stated in 1872 that suitable "ore for Bessemer iron was unlimited in the Lake Superior and Missouri Iron Mountain region, and was being developed abundantly in Northern New York, Central Pennsylvania, and at various points in the Southern States." Some of the anticipations of 1872 have, however, not been realized; but there is not likely to be any lack of ores suitable for Bessemer pig when, in addition to "the Lake Superior deposits, are taken into account those of Northern New York, Pennsylvania, Ohio, Tennessee, and the immense ore beds of Missouri, of which the latter, though as yet but partially developed, have been proved to contain some of the purest and richest ores in the world."

The following statement respecting steel works at Pittsburgh, from the report of the Pennsylvania Bureau of Statistics, shows the estimated production and value of steel produced at the several steel works of Pittsburgh during the year 1872, with the annual capacity of each: Hussey, Wells & Co., capacity per annum 12,000 tons; Park Brother & Co., 10,000; Anderson & Woods, 10,000; Miller, Barr & Parkin, 8000; Singer, Nimick & Co., 8000; Reese, Graff & Woods, 5000; Brown & Co. 1500; Reiter, Lavely & Co., 1000; total, 55,500 tons; total produced 1872, 27,520 tons; average value, $250 per ton, equal to $6,880,000.

As a rule, machinists and mechanics, who can do several kinds of work, are not restricted to one special kind, however excellent it may be, and do much better than those who are so limited. There are few establishments in which special excellence in any one of the minor details will obtain constant employment for the machinists. As such establishments become more numerous, such workmen of special excellence in one detail will be more in request; but, in the meantime, the fact will probably remain that, as several British machinists of that class have discovered, the openings are not so good for the specialized artisan as for the intelligent worker in several details. Indeed, as several practical manufacturers have said, a skilled laborer should, as a rule, only come out on contract, unless he can afford to wait for a chance of employment. Moreover, recently the difference in actual earnings has not been as great in favor of labor in the United States, and perhaps this cause will in a great part account for the many skilled laborers in iron who returned to England even before the recent panic, after having emigrated on speculation, or in some cases having been imported for the mill.

It seems to be the general opinion that the English markets in the United States for rails and other irons will gradually diminish; that iron rails will soon entirely cease to come in; and that steel rails will lessen from year to year in quantity.

The Shenandoah, and other similar districts in Virginia and North Carolina, Central Alabama and Southern Illinois (block coal) and Missouri, may possibly export iron in large quantities. And if, as is with apparent reason averred, Arkansas coal of a block, or an anthracite, or almost anthracite character, can be delivered in New Orleans for only $4 or 15/ a ton, and iron ores, equal to those of Missouri, exist close to this coal, then an export trade by New Orleans of Arkansas, as well as Missouri pig iron of the charcoal kinds, may in the near future spring up. If, for instance, $18, or 67/6, were to cover every item of production in Arkansas, as it probably would do, and the freight and expenses were similarly from $2 to $3, then the pig metal would be put on board ship, say $25, or 93/9 only. From New Orleans, however, the freight to England would be greater than from the East Coast, Norfolk or Port Royal.

The figures of the consumption of iron in the United States are startling in the extreme, although still only approximate. The following will, however, give a good idea of what amount of iron is used, and how it is used: Production of pig iron, say 2,400,000 tons; importation all kinds pig iron, 1,254,618 tons; add amount of American scrap reworked, 1,000,000 tons; total raw iron consumption, 4,654,618 tons. Charcoal pig iron of boiler plate quality has recently been shipped to Liverpool from the Shenandoah Valley, of Virginia, as an experiment. The exportation of American firearms, sewing machines, agricultural implements, and cut nails, for instance, are well known facts. Locomotives were exported last year. In some hardwares the Americans can afford to import from England the materials, and yet compete in foreign markets with her.

Effects of the panic—whole number of rail mills, 57; number of mills making returns, 50; number of mills running December 31, 1873, 17; number running full time, 10; number running half time, 7; number standing, 33; number proposing to resume in January, 10; number uncertain about resuming, 23; number of hands wholly unemployed, 11,490; number of hands employed half time, 10,150; number of mills selling rails, 13; number of mills not selling rails 37; net tons of rails on hand and unsold Dec. 31, 36,744.

The following statistics of the works at Joliet are interesting: Capacity of works—Two blast furnaces, Joliet, pig iron, per week (on rich ores), 1400 tons; two blast furnaces, Chicago, per week, 350 tons; Bessemer plant, ingots per week, 700 tons; new rail mill, rails, per week, 1000 tons; old rail mills, rails per week, 600 tons; puddle mill, muck bar, per week, 250 tons. The coke works produce 25 tons per day, and may be indefinitely extended. The coal washers produce 150 tons of washed slack per day. The fire brick works are capable of making 3,000,000 bricks per year. The shops are of sufficient capacity to keep in repair all these works, and a second Bessemer works and merchant mill; also, to construct most of the machinery required for further extensions. The Bessemer works: These works, as well as the new rail mill, were built from the general design of Mr. A. L. Holley, the engineer who has built, or been connected with the designing of the Bessemer works in the country, and they therefore embody all the improvements developed by the millions of expenditure and the eight years of home practice in this direction That these improvements are very comprehensive and substantial, may be gathered from the fact that three years ago 1000 tons a month was the maximum capacity of the best works in America, and that to-day the average production of English works of the same nominal size is about 1500 tons per month, while the regular production of several of the best American works is now from 2500 to 3000 tons per month. It is believed that the Joliet works may attain to a yield of 3500 to 3800 tons of ingots per month. Steel rails could have been produced in a wooden shed of half the area of this mill; heating could have been done in old fashioned furnaces; small ingots could have been rolled direct, thus dispensing with the blooming mill; and a less heavy train and engine would have lasted—till they broke down. The cost of plant might have been lessened, and that of product increased almost indefinitely. Experience, however, both at home and abroad, especially the admirable practice developed by the Messrs. Fritz, at Bethlehem and Johnstown, have clearly pointed out the course followed at Joliet. Quality of machinery: The steel train at Harrisburg, which is the heaviest and most costly yet started in America, has run five years without any breaking down or wearing out whatever, except of minor parts. The Joliet train is the same, except that it is divided into three stands of short rolls instead of two stands of long rolls, so as to insure greater strength for rolling beams and heavy merchant and bridge steel. The parts are all machine fitted with the accuracy of steam engine work. Meanwhile, rolling steel in other, lighter and badly fitted trains, has broken enough rolls, pinions and boxes, and caused enough delay, to furnish material and time for the construction of a set of first-class machinery. The same idea has been carried out in the blooming train, engines and other machinery—the idea well expressed by one of the most prominent of American rolling mill men—that "if you happen to get a machine too strong you never know it." The Siemens' furnaces: That these, as compared with ordinary furnaces, although considerably more costly to construct, save at least a half of the cost of heating, in quantity and quality of fuel (they burn slack while common furnaces require lump coal) in oxidation and in labor; and that they relieve the company very greatly from dependence on class labor, is fully demonstated at Johnstown and elsewhere. In constructing the furnaces and producers, the improvements developed at Johnstown have been embodied, and many others, especially as to labor-saving appliances, have been developed. The building: Although this is one of the most imposing and elegant structures of the kind, it could hardly have been made less expensive, such is the character and cheapness of Joliet stone, unless reasonable durability had been sacrificed. Vast as the building appears, it is nothing but a series of stone piers surmounted by arches of large span supporting a plain roof, and containing altogether but very little material. The arches are closed at the top with thin wooden panels and windows, and between the piers with hinged doors, so that all may be closed from wind and weather in the winter, while in the summer it is a mere "roof on legs," affording abundant ventilation. The building is made large: 1st, To accommodate the blooming mill; 2d. To roll and finish bars 60 feet or more long; 3d. To roll iron and steel rails at the same time. The Blooming Mill: Rolling blooms for two or three rails at a time, from 12 and 14 inch ingots, instead of rolling single rails from small ingots, saves handling, saves much material in crop ends, saves much second quality product, as there is more chance for working and chipping out surface imperfections, and it makes better rails, because it gives twice or more than twice the reduction and compression to the steel. The blooming mill is also adapted to rolling ship and bridge plates, by a mere substitution of flat rolls. Making 60 feet Bars: This is the only mill in the United States, except the new mill at Bethlehem, adapted to finishing the long bars now beginning to be required. Rolling rails of double length, and cutting them afterward, also increases the product of the mill. Rolling Iron and Steel together: This a very important feature. The capacity of any train of rolls that will produce steel rails at all is considerably greater than that of Bessemer plant. Until another converting work is erected, there is therefore train capacity to produce iron as well as steel rails. We have provided also for engine, furnace and finishing capacity, and room for top and bottom rolls, shears, &c., the result of which is that by a comparatively small expenditure for furnaces and rolls, some $250,000 worth of machinery and buildings can be utilized, that would otherwise stand idle half the time. Tops and bottoms and iron rails can be rolled at the same time during the day, and all the steel the converters can produce can be rolled during the night.

The Morgan has been, perhaps, the most successful enterprise connected with the iron trade in the Lake Superior district, having made, in the first ten months, a clear net profit of 220 per cent., thus enabling the company to pay back all the original outlay for land and machinery, leaving a dividend of 100 per cent. to be divided among the stockholders.

The necessity of good metal in the forge is illustrated by the following fact. An instance is recorded in which a ton of blooms, from white metal of excellent quality, was produced with the consumption of only ninety bushels of coal; while, on the other hand, when gray pig iron was used, 400 bushels of coal were consumed in producing the same amount.

Alabama is reported to possess a ridge of red fossiliferous ore "100 miles long, with an average thickness of little less than 15 feet," and to have, in addition, large deposits of brown hematite scattered along the coal region. These ores range from 40 to 55 per cent. of metallic iron. A large portion of them is so near the surface that it can be mined at comparatively small cost.

North Carolina possesses great resources in iron ores, which are as yet practically undeveloped. The principal ores are magnetites, pure chromiferous or titaniferous, as well as hematite or specular ores, limonites or brown hematites, and some carbonates. These ores, especially the magnetites and hematites, are reported to be "in reality only a mere ferriferous portion of the stratification and to form strings of large lenticular beds in the rocks, here and there interrupted, but extending for many miles, and, in some instances, stretching across the entire State." The black band ores are also found interstratified with the triassic coal, but they are so mixed with bones and teeth of saurians and fishes as to render them worthless as iron ores, but probably valuable as manure. Some of the ores were worked during the late war, or at an earlier date, in a small way, and made good car wheel iron. They seem to be rich in iron ranging into 50 per cent. and more, and, in some cases, to 60 per cent. and more. Usually they, at any rate the surface ores, are remarkably free from sulphur, and, in many cases, from phosphorus. In several places the deposits seem to be immense.

A brief description of the method of boring salt wells on the Ohio River and its branches, or oil wells, will answer every purpose; but those who intend to engage in the experiment should employ men who, beside being well acquainted with the business, are able to conduct it safely and advantageously. When a place, where the rock is to be penetrated, is selected, a hole like the shaft of a well is dug down to the solid rock, or better, a soil-pipe is driven down. Over this soil-pipe a derrick, from 25 to 30 feet high, formed of scantlings from 6 to 7 inches square, is erected. On the top of this derrick a pulley is fastened, over which a hemp rope may be laid; the one side of the periphery of this pulley is vertical to the center of the bore hole, and a plumb lead let down from it ought to hit the center of the soil-pipe. The boring or penetrating of the rock is done by means of a steel drill attached to a wrought iron rod, firmly secured to the end of the rope, weighing from 200 to 500 lb. weight; the vertical motion of the drill is given by a small engine, and the spiral motion for the turning and lengthening of the rope, as the work proceeds, is given by the hand. This arrangement is a very good one, for it penetrates rapidly, and by it the expense of a 2½ inch hole very seldom exceeds $1 or $1·50 per foot, to a depth of 300 feet, in moderately permeable soil. The old German method of sinking small holes by means of square iron rods, which is at present mostly employed in Europe, is very expensive, slow and uncertain.

Labor in and around Port Henry, the center of the Lake Champlain district, was, in 1873, before the financial panic, higher than it probably was in any other district. Two causes were given for this, a union of the men with, I believe, the priest as treasurer; and the readiness of the proprietors to concede higher rates of wages, as they could obtain whatever price they liked for their ores. This latter cause has now, to some extent, ceased to operate. The men were paid an average of $2·50 a day including laborers. The daily rates varied from $2·30 to $2·60. The cost of mining was said to be an average of $2 in the large mines, and of $3 in the small mines per ton. The laborers are largely foreign, Irish and others. The miners do not, as a rule, save. One of their chief modes of spending is to keep a horse and "buggy" and drive about. The vehicles in a miner's village were certainly astonishingly numerous. Since the formation of the union a library, provided for the men, at a cost to each of 1/ a month, has been given up on account of the men objecting to the payment, and a former condition of work to send their children to the free school provided, has been abandoned. In 1860 the standard of wages was 87½c. a day. It then rose to $2 in 1872, and was, in 1873, $2·25 for common labor.

Miller's Improved Self-Locking Brass Padlock.

We illustrate below a very neat and attractive padlock, made by the D. K. Miller Lock Co., of Philadelphia. Figure 1 shows the full size exterior of the lock and its key. In Fig. 2 the outer plate is removed, in order to exhibit the mechanism. A is the dog, which is so pivoted as to fit into a recess of the hasp B, when the latter is pushed down. The end of the lower arm of the dog is formed with an angular projection, C, which, engaging against a properly shaped shoulder at the bottom of the recess, holds the hasp in the position mentioned, in opposition to the upward tending force of one arm of the spring, D. At E are the tumblers, either six or seven in number, according to the size of lock, all of which are pivoted on a single pin, and each provided with a bent wire spring, as shown. The upper portion, F, of one of these springs, instead of resting, as do the others, against the projecting part in the shell, is brought forward and under the straight arm of the dog, so as to force the lower arm of the latter against the tumblers, and causes the projection, C, to enter notches in the tumblers, when the same are brought into proper position.

It will be readily understood that, owing to the angle of the notches in the tumblers, and to the dog being in a solid piece, it is only when all the notches coincide that the projection can enter them. One of its important features is, that no two locks are alike, the key that fits one being entirely useless to open another. This advantage is secured by varying

Fig. 2

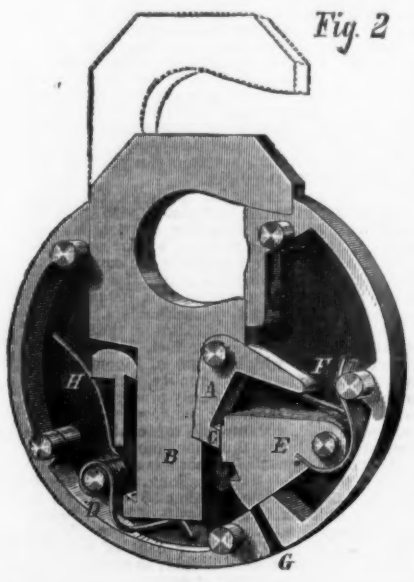
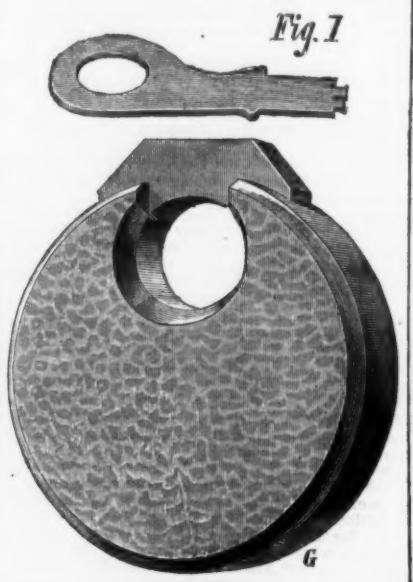


Fig. 1



the positions of the notches on the tumblers; so that in order to render all the notches coincident, a key having peculiarly formed projections and recesses at its extremity must be employed, which, acting on all the tumblers simultaneously, lifts each the exact distance required.

The key is merely pushed into the proper aperture, freeing the dog as above described, and allowing the hasp to be acted upon by the spring, D, and so lifted upward into the position indicated by the dotted lines in Fig. 2. Motion in this direction is then limited by the catch, H.

In points of workmanship and construction the device possesses the merits of security, simplicity and convenience; while its durability is enhanced by being made entirely of brass. The pins at all movable joints are of hard wrought brass wire, so that deterioration from the effects of wear is amply provided against. The lock has been adopted by the United States government. The present device was patented in this country June 26, 1870, and October 21, 1873. Similar protection has been obtained in England, France and Belgium. Mr. Miller is an expert of considerable celebrity, having devoted a number of years to the question of locks, their improvement and security. He is a well known safe and bank lock expert, and has in these locks certainly produced a very superior article. No two of these locks are alike unless specially ordered. Each lock is furnished with two keys. Any number of locks and keys are made to order. The manufacturer, being determined to establish an honorable reputation with the trade, will, in case of any defects, &c., repair or replace any locks gratuitously. A sample will be sent free upon receipt of $1·80.

For particulars regarding sale of foreign patents and other information, address the manufacturers, the D. K. Miller Lock Company, 712 Cherry street, Philadelphia.

A New Inman Steamer.

The Liverpool *Courier*, of Oct. 29th, says:

On Tuesday there was launched from the building yard of Messrs. Caird & Co., Greenock, a magnificent screw steamer for the Inman Transatlantic Line. The new steamer, which was named City of Berlin by Mrs. Threlfall, is perhaps, with the exception of the Great Eastern, the largest merchant vessel afloat, her dimensions being as follows: Length over all, 510 ft. 6 in.; length of keel and fore rake, 476 ft. 6 in.; length on load water line, 473 ft. 3 in.; breadth (molded), 44 ft.; depth to spar deck, 36 ft. 3½ in.; gross register tonnage, 5000 tons. The launch of such a vessel naturally attracted much interest in Greenock and district, and as the day was fine, a very large concourse of spectators assembled to witness the floating of this sea going palace. Inside the building yard was accommodated a numerous company of the *elite* of the district, a large platform having been erected at the bow of the ship for their special accommodation. The ship will be supplied with two direct acting high and low pressure compound condensing engines of 1000 horse-power, the cylinders being 72 and 120 in. She will also have twelve boilers, with thirty-six furnaces.

Shortly before noon, everything being in readiness, the order was given, "down daggers," and so sensitively had the ship's declivity been pitched that on the first blow of the hammer the vessel began slowly to move, and gradually gathering "way" as she proceeded, gracefully entered the water amid the exulting cheers of the spectators. The weight of the vessel as she lay on the blocks was about 3000 tons, being equal to something like 24 tons of pressure to the square foot on the "ways." After entering the water the City of Berlin was taken in tow by four steamers and brought to Victoria Harbor. Accommodation will be provided on board the City of Berlin for 202 first class passengers and 1500 emigrants. It is expected that she will be ready to take her station early in the ensuing year. This is the second large steamer built by Messrs. Caird & Co. for the Inman Company, the preceding ship being the City of Chester. The City of Berlin is about fifty feet longer than the Chester. The Berlin will be ship rigged, and her internal accommodation will be of the most complete and comprehensive description.

The Screw Propeller.

That Archimedes was the discoverer of the screw, says the London *Times* of Oct. 31, is universally allowed, as universally disputed; Americans, English, French, Germans and Italians all put in a claim, and that not for an individual of each nation, but in some countries more than one of their sons (or rather their descendants) dispute the honor of being its author. An impartial student will probably come to the conclusion that experiments to discover the means of applying the screw as a motive power to ships were at different periods spontaneously made in various places by inquiring minds, who were perfect strangers to each other and to each others discoveries or appliances. So far back as 1736, David Bushnell, a native of England's American colonies, made experiments by means of a screw to propel a submarine torpedo. Evidently his essays were not successful, or those infernal machines would have been heard of sooner. In 1836 John Smith, an Englishman, formed a company, and built the first sea-going screw steamer, appropriately named the Archimedes, from which date the success of the screw propeller was an accomplished fact. Between 1726 and 1836 many inventors took the matter up; but it was not until 1832 that one of the experimentalists, Frederic Sauvage, hit upon the idea of applying steam to the screw as a motive power. Up to that period it had been sought to drive the screw by a capstan manned by men, or other cumbrous and non-practical means. In France Frederic Sauvage is considered to have the largest share of merit in practically applying a machine which is the production of many minds, and which even now is being continually improved. The town of Boulogne-sur-Mer, where Frederic Sauvage was born on the 20th of September, 1786, has lately gone to considerable expense in awarding him posthumous honors, which recently culminated in the uncovering of a monument to his memory. At 10 o'clock the government, municipal, naval and military authorities, deputations from various cities, headed by M. Le Baron de Latouche, Sous-Prefet, and M. Huguet, Maire, started in procession from the Hotel de Ville for the cemetery, to which the remains of Frederic Sauvage were removed from Paris and interred with public honors on the 20th of September, 1872. The monument over his grave is a square pediment in three portions, made of gray marble, of the same kind as the Napoleon Column is built, and obtained from the Marquise quarries. It rises to the hight of 14 feet, and on the top a bronze heroic sized bust of Frederic Sauvage is placed. On either side of the monument is an inscription setting forth the date of his birth, death (19th of July, 1857), the translation of his remains, and a list of his inventions. On the front are the two words "Frederic Sauvage," and a bronze bas-relief showing a vessel with a screw propeller, a pantograph (*procede Collas*), a physeonotype, a horizontal mill for sawing marble, and a soufflet hydraulique for raising water, all of which were either invented or perfected by F. Sauvage, who, in addition, invented the conformatour, an instrument for measuring the head, the physionometre, and an automatic boat. The bronze bust and bas-relief were modeled by Mr. John Hopkins, an Anglo-Boulonnais, and were cast by Messrs. Thieubaud et Fils, of Paris. Frederic Sauvage's life was similar to those of many other inventors, in that he spent his days and fortune in perfecting inventions which brought him no profit. Having lost his own money, he borrowed from others, and being unable to repay, was thrown into a debtors' prison, which he afterward exchanged for a madhouse, where he died on the 19th of July, 1857. The monument was designed by M. De Bayser, town architect of Boulogne.

Wave Motion.—The Melbourne *Argus* says: "Regarding Mr. R. S. Deverell's experiments with ocean wave power machinery, Mr. Ellery, in his address at the Royal Society's meeting, gave the following information: Some months ago Mr. Deverell devised an apparatus by which the movements of a ship at sea could be registered. This was placed in charge of his brother, who went to England in the ship Norfolk for the purpose of making observations with it on the voyage. From the results of these, Mr. Deverell deduced the following: 'The duration of the voyage was 2026 hours. During that time the ship made 1,764,088 beam oscillations or rolls, and 1,041,137 fore and aft oscillations or pitches. The average number of oscillations in both directions per minute was 14. The aggregate arc of pendulum registering beam movements was over 15 million degrees, while that of the fore and aft movements was nearly 5 million degrees.' Mr. Deverell also considered he had definitely established from these observations the following propositions: 1. That between ocean limits the swell of the ocean is unceasing. 2. That the oscillation of a vessel in an ocean fetch is unceasing. 3. That the motion of an independent body within a ship on the ocean is unceasing. Here then was represented an immense amount of conservable energy, and the question remained, 'Could a practicable method be found for conserving it for use on board ship?' Mr. Deverell believed it could, and to a sufficient extent to be useful in auxiliary propulsion. Mr. Deverell expected to be in a position in a few months to detail his method of putting his propositions into practice, and promised to bring it before the Royal Society of Victoria as soon as it was matured. Mr. Ellery mentioned that Mr. Bessemer had purchased from Mr. Deverell the instrument the Norfolk voyage observations were made with, for his famous saloon ship. This fact had probably led to a report which appeared in print some time ago that Mr. Bessemer and the admiralty were building ships on Mr. Deverell's principle, but which was entirely without foundation."

Special Notices.

Manager Wanted.

By a Manufacturing Company located in Connecticut; within 40 miles of New York. He should be experienced in general machine shop practice, preferably in the production of light work by special machinery, and, above all, a competent manager of men and works. A person of good education, somewhat acquainted with office work, is greatly preferred. Present salary from $1800 to $2400, according to ability. Position permanent if satisfactorily filled. Address, stating past experience, references, etc. *"E. N. W,"*

Office of The Iron Age, No. 10 Warren St., N. Y.

Hardware Merchants.

We can supply you with strong pine dressed packing boxes, suitable for packing shelf hardware, at half the price of new boxes, in lots of one, to three or four hundred at a time. We have various sizes, and are as good as new.

Wilson Sewing Machine Co.,

827 & 829 Broadway, N. Y.

Manufacturers Attention.

LABOR TO HIRE.

Wanted to hire out, the labor of 250 convicts in the Missouri State Penitentiary. Two Shops, 150 by 50 feet each, with main Shafting and Pulleys in Shop, with all the Steam Power needed. The finest opening in the West for a Furniture Shop, or for Wagon Material, Handles and Hames Manufactory. Any portion of the above hands will be hired.

Also, a first-class opportunity for parties to engage in the manufacture of Men's Boots and Shoes, or Agricultural Implements. Ample shop room. Timber of all kinds very abundant. Correspondence solicited.

Address *HUGH L. FOX,*
Treasurer St. Louis Mfg. Co.,
Jefferson City, Mo.

Tenders Invited,

Separately or together, for Iron and Spikes required in the construction of a large Propeller for the Lake trade.

Delivered on cars at Pittsburgh, Buffalo, Detroit or Toronto.

W. Kough, Hardware Merchant.

OWEN SOUND, ONTARIO, CANADA, Nov. 12, 1874.

Merchant Iron or Nails

Wanted in exchange for 300 tons No. 1 Wrought Scrap Iron.

GILCHRIST & GRIFFITH,

Mount Pleasant, Iowa.

A young man of twelve years' business experience, wishes to engage in

JOBBING OR MANUFACTURING

business. Can invest $20,000.

Address, *C. E.,*

Office of *THE IRON AGE*, 10 Warren St., N. Y.

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CANADIAN BANK OF COMMERCE.

Capital - - $6,000,000, Gold.
Surplus - $1,800,000, Gold.

The New York Agency, No. 50 Wall Street, buys and sells Sterling Exchange, makes Cable Transfers, grants Commercial Credits, and transacts other Banking Business.

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by the 1st of January, 1875, in an established Hardware business, who can put in from $20,000 to $25,000, either cash, or stock suitable for jobbing trade.

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FOR SALE in the best business part of Jersey City, a first-class *Tool* and *Hardware* business. Established about 25 years, and doing a fair business.

Apply to *H. LUTIGEN,*
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By BISSELL & CO.,

Successors to R. T. HAZELL & Co.,
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CASH ADVANCES made on CONSIGNMENTS without additional charge.

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Patents secured in the United States and Europe, on the lowest terms and very

PROMPTLY,

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SPECIAL NOTICE.

I have three patents for Dies, Machinery, and Tools for making Augers and Bits, each running seventeen years; dated as follows: Dec. 19, 1865; January 31, 1866, and July 3, 1866. **There is a special claim on each of the Dies.** All persons infringing on said patents will be held responsible to the extent of the law. **Russell Jennings.**

DEEP RIVER, Conn., Sept. 7, 1874.

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Fletcherville Blast Furnace Co.,
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Analysis of Average New Bed Pure Ore.		*Analysis of No. 1 Bessemer Pig.*	
Metallic iron	68·240	Undetermined matter and loss	·134
Oxygen with iron	26·010	Silicon	1·019
Water	·380	Carbon	3·821
Insoluble silicous matter	4·320	Phosphorus	·048
Sulphur, practically none		Sulphur, practically none	
Phosphorus	·038	Calcium	·140
Alumina	·280	Metallic iron	94·838
Lime	·140		100·000
Undetermined matter and loss	·592		
	100·000		

Witherbees & Fletcher,

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Furnace at FLETCHERVILLE, near Mineville, N. Y.

J. M. WHITE,

Architect and Constructor of Charcoal Blast Furnaces. Plans, Specifications and Estimates of construction furnished upon application.

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Cash paid for allkinds of **Metals** and **Tools.**

THE
McHaffie Direct Steel Castings Co.
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Solid and Homogeneous, guaranteed to stand a Tensile Strain of 25 tons per square inch. An invaluable substitute for expensive **WROUGHT IRON FORGINGS** or for Iron Castings, where great strength is required. Office, **cor. Evelina and Levant Sts., PHILADELPHIA.**

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Pressed and Japanned TIN WARE,
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Solicit correspondence from parties having **Tinners' Specialties** and **Goods** in our line of manufacture to sell. A large acquaintance with the trade of the Northwest makes us desirable mediums for manufacturers and inventors for introducing and selling their goods in connection with our own.

For Sale, &c.

Hardware Business For Sale,

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The stock and trade of an old established house, favorably known throughout the Territory. Stock clean and in good order. Trade large. Long continued illness of proprietor, sole reason of sale.

Address, *JOHN HARPER,*
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Metropolitan Works.
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In addition to a full line of new engines, boilers, saw mills, and other machinery of our own manufacture, we have now on hand and will sell at very moderate rates, the following lot of **second-hand machinery,** viz.:

3 Double Hoisting Engines, suitable for mining, tunnelling or other purposes. Each of these engines has two cylinders, 7½ in. diam. by 18 in. stroke; two drums, 4 ft. diam. by 4 ft. long; geared to engine in proportion of 8 to 1, and are provided with disconnecting gear and friction brakes.

One 150 Horse-Power Stationary Engine, with heavy fly wheel, all complete, and nearly as good as new.

Three Return Tubular Boilers, (70 three inch tubes each), 15 feet long, complete with steam drum, fronts, valves, grates, &c., suitable for the above engine.

One 10 Horse-Power Portable Engine of our own make, complete, with two driving pulleys, "Judson" governor, &c., nearly new, and in excellent order.

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One 30 Horse-Power Stationary Engine, as good as new, complete, with "Judson" governor, fly wheel, &c.

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Two Flue Boilers, 26 ft. long, 42 in. diam., each with two 14 in. flues, iron front, grates, &c., in good order.

One Flue Boiler, 34 ft. long, 48 in. diam. with two 14 in. flues, about as good as new.

One 7 Horse Portable Engine, of our own make, used only a few months, and in perfect order.

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Thirty Brass Tubes, 1¾ diam., 12½ ft. long.

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The whole, or an interest in a Blast Furnace, with capacity of 50 tons per day, with modern appliances. Well located. Bituminous Coal or Coke. Price low. For particulars, prices and terms, address,

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Finest Charcoal Properties

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Also, 6400 Acres Bituminous Coal Lands, for which part payment will be taken in Northern Pacific R. R. Bonds.

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For particulars inquire of

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To Rent.

First and third floors—together or separate. Brick building 125x50, well lighted and the best business location in the city. Light power will be supplied if desired, or parties can furnish their own if preferred. Address, with particulars,

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An 8¼ inch mill train for making Merchant, Band and Hoop Iron. Will be sold cheap.

Apply to **W. W. JONES,**
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GUNS & SHEET ZINC,

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20 Reade Street, N. Y.

FOR SALE,

£1. German consular instructions in English, published by subscriber, who *translates* from and into the English, Spanish, French and German. Latest *translations* made for the Spanish Government. Pacific Mail Steamship Co., Walter A. Wood, Morris, Wheeler & Co., Todd & Rafferty, and John T. Dunkin, N. Y.; Wilder & Co., Savannah; and the Tanite Co., Stroudsburg; by

C. KIRCHHOFF,
Commercial Editor "El Cronista,"
Box 2806, N. Y.

Trade Report.

Office of THE IRON AGE,
WEDNESDAY EVENING, Nov. 18, 1874.

The past week has witnessed some activity in Wall street, with an advance in gold and foreign exchange. The money market has been rather firmer, with call loan rates averaging 3½ @ 4½ per cent. For the comparatively little commercial paper offered the rates are low. Prime endorsed is freely discounted at 4½ @ 6 per cent. For unknown names the rate is 7 @ 12 per cent.

The bank statement shows a large gain in specie by reason of the Treasury coin disbursements since the opening of the month. The specie average was a rising one at the beginning, and, it is believed, is at the close of the week. The change in legal tenders, while small, is favorable. The loans have fallen $1,278,600, on the average covering six days. The total reserve of the banks is now $76,413,300, or $18,914,750 more than the law requires. The excess of reserve above legal requirement last week was $15,338,025. The following is a comparison of the averages of the past two weeks:

	Nov. 7.	Nov. 14.	Differences.
Loans	$285,066,500	$283,787,900	Dec. $1,278,600
Specie	12,574,800	16,888,200	Inc. 4,313,400
Leg. Ten	59,451,700	59,525,109	Inc. 73,400
Deposits	226,753,900	229,994,200	Inc. 3,240,300
Circulation	25,032,400	24,832,000	Dec. 250,400

The gold market has been strong, and the advance above noted, and below shown by comparison, is accounted for by the fact of an advance in foreign exchange to figures which give a profit on the exportation of gold. During the week coin interest disbursements by the Treasury have been made to the amount of $1,066,700. The $500,000 sold on Thursday last brought 110·28 @ 110·31. The following were the extreme daily fluctuations since our last report:

	Highest.	Lowest.
Thursday	110⅝	110⅜
Friday	110⅝	110⅜
Saturday	110⅝	110⅜
Monday	111⅛	110⅞
Tuesday	111⅛	111⅛
Wednesday	111⅛	110⅞

Governments bonds have been moved in close sympathy with gold. As better prices have obtained at home than abroad, they have been returned to the market in considerable quantities. Southern State bonds retain the new strength they have acquired since the fall elections, and are gaining in favor as investments. Railroad mortgages are also in good demand at advancing prices.

In the stock market there has been considerable irregular activity, but since Tuesday prices have declined. The principal speculation has been in Lake Shore, Union Pacific, Pacific Mail, Ohio and Mississippi, Western Union, Wabash and Northwest.

The following tables show the week's movements in foreign trade:

IMPORTS.

	1872.	1873.	1874.
Total for week	$5,717,907	$5,762,089	$6,092,737
Prev. reported	377,776,302	343,488,769	339,956,807
Since Jan. 1	$383,494,209	$349,250,858	$346,049,544

Included in the imports of general merchandise for the week are:

	Quant.	Value.
Anvils	131	$1,344
Brass goods	4	242
Bismuth	2	912
Bronzes	78	15,365
Chains and anchors	69	3,639
Copper		277
Cutlery	84	23,858
Gas fixtures	1	289
Guns	35	8,651
Gun barrel molds	40	1,413
Hardware	57	7,871
Iron cotton ties	806	2,409
Iron, other, tons	202	11,200
Lead, pigs	3,408	23,514
Metal goods	150	22,263
Nails	34	160
Needles	16	7,726
Old metal		1,337
Plated ware	2	185
Per. caps	12	2,054
Saddlery	4	1,074
Steel	2,731	29,494
Silverware	2	73
Tin, boxes	15,999	130,723
Tin, slabs, 2823	208,578	45,237
Wire	1,781	13,786
Zinc	213,413	14,407

EXPORTS OF SPECIE.

Total for the week	$273,060
Previously reported	44,363,197
Total since January 1, 1874	$44,636,257
Same time in 1873	45,090,488
Same time in 1872	63,383,456

The following shows the exports, exclusive of specie, from New York to foreign ports, for the week ending Nov. 17, and since the beginning of the year:

EXPORTS EXCLUSIVE OF SPECIE.

	1872.	1873.	1874.
For the week	$5 365,829	$7.603,599	$5.365,249
Prev. reported	199,767,701	257,589,347	250,792,839
Since Jan 1	$205,133,530	$265,192,946	$256,158,088

Government bonds closed at the following quotations:

	Bid.	Asked.
U. S. Currency 6's	118¾	118¾
U. S. 6s 1881, reg	118¾	118¾
U. S. 6s, 1881, con	119¾	119¾
U. S. 1862, 5-20 reg	112¾	113¾
U. S. 5-20 1862, con	112¾	112¾
U. S. 5-20 1864, reg	113¾	114¼
U. S. 5-20 1864, con	114¾	114¾
U. S. 5-20 1865, reg	115	115¼
U. S. 5-20 1865, con	115¾	115¾
U. S. 5-20 1865, reg. new	117¾	118¼
U. S. 5-20 1865, con	118	118¼
U. S. 5-20 1867, reg	118¾	118¾
U. S. 5-20 1867, con	118¾	118¾
U. S. 5-20 1868, reg	118¾	118¾
U. S. 5-20 1868, con	118¾	119
U. S. 10-40 reg	112¾	112¾
U. S. 10-40 con	113¾	114
U. S. 5s, 1881, reg	112¾	112¾
U. S. 5s, 1881, con	112¾	113¾

The following were the highest and lowest prices of stocks to-day:

	Highest.	Lowest.
N. Y. Cen. & Hudson Consolidated	102	101¾
Lake Shore	81¼	80
Rock Island	100⅝	100⅜
New Jersey Central	107¾	107¾
Wabash	31⅞	31¾
Canton Land Co	62¾	61¾
Western Union Telegraph	80¾	80
Northwestern	42⅞	41¾
" Pref	60¾	59¾
Milwaukee & St. Paul	37¾	36¾
" " Preferred	56¾	56
Pacific Mail	45¾	44¾
Erie	29¾	28¾
Ohio & Mississippi	32¾	31¾
Union Pacific	36¾	35¾
C. C. & Ind. Central	10	9¾
Atlantic and Pacific, Preferred	16¼	15¾
Hannibal and St. Joseph, Pref	34¾	34¾
Quicksilver	32⅛	32⅛
Consolidated Coal	47⅛	47⅛
Adams Express	119¾	119

GENERAL HARDWARE.

Trade has fallen off considerably during the past week, and may be fairly reported quiet and inactive in almost every department coming under the title of General Hardware; if it should continue dull for the balance of this year it would be only natural. We hear of numerous small orders from travelers and regular mail customers, but the goods ordered during the remaining weeks of 1874 will be only for immediate requirements, and with the exception of orders for importation, no large transactions can be reasonably expected before the commencement of spring trade.

Trade in Foreign Hardware is dull, as is usual at the close of the season, and no change in prices have occurred since our last. There is a fair inquiry for fine Table and Pocket Cutlery for holiday trade, but general business has perceptibly fallen off.

The improved demand for Nails noticed last week continues, but prices remain as previously quoted. We continue to quote 10d. at $3·60 @ $3·75. Nails in large lots have been sold as low as $3·50, net, for 10d.

Markt & Co., 139 to 143 Centre street, give notice that they will be in the market, as usual, with a full assortment of Screen Wire Cloth of best quality and finish, and are prepared now to accept orders for the season of 1875. To parties not desirous of buying so far ahead they want to make it known that they will have a full stock at opening of the season, which they will be prepared to sell as low as any of their competitors.

G. W. Bradley, No. 37 Chambers street, has issued the following circular and list of L. H. Watts' Ship Carpenters' Tools:

Your attention is invited to the annexed circular from E. Arnold, and your orders respectfully solicited, and can only add my aim shall be to keep up the reputation of Watts' goods, and to furnish the best Tools it is possible to manufacture from the best material and the most skilled workmen.

TO THE PATRONS OF E. ARNOLD, FOR L. H. WATTS' SHIP CARPENTERS' TOOLS.

NEW YORK, Nov. 3, 1874.

I have this day transferred my right to manufacture all Tools under stamp of L. H. Watts, to G. W. Bradley, Westport, Conn., who will hereafter manufacture all goods formerly made by me. E. ARNOLD.

Address orders to N. Weed, 37 Chambers street, New York.

LIST OF PRICES.

Ship Carpenters' Adzes	$3·00 each.
" " Axes	4·00 "
" " Mauls	35c. per lb.

Ship Carpenters' Chisels.

Each	$0·95	1·00	1·10	1·15	1·20	1·75	2·40
Inch	1	1⅛	1¼	1⅜	2	2⅛	3

Ship Carpenters' Gouges.

Each	$1·10	1·15	1·25	1·30	1·40	2·00	2·60
Inch	1	1⅛	1¼	1⅜	2	2⅛	3

Block Makers' Gouges.

Each	$1·25	1·35	1·45	1·50	2·00	2·25
Inch	1	1⅛	1¼	2	2⅛	2¼

Block Makers' Axes	$4·00 each
" Stock Knives	7·00 "

Coopers' Tools all kinds.
Adzes, Axes, Drawing Knives, Hammers, &c.
Less discount 25 per cent.

Dock Builders' Axes ..... $2·00 each.

Sargent & Co. report the following additional reductions in price, subject to their extra discount of 10 per cent. for prompt cash:

Page.
295, No. 88, Hook and Eye Hinges ..... 65& 10 %
294, No. 78, Heavy Welded Hook Hinges ..... 65 %
294, No. 79, " " " " ..... 65 %

The following changes have been made by the Hart, Bliven & Mead Mfg. Co.:

Page.
66, F. J. and L. J. Plate Hinges ..... dis. 60&10 %
103, Store Door Handles, No. 70 ..... 70, 10&10 %
179, Challenge Auger Bits ..... 40&10 %
190, Common Lever Saw Sets ..... 10&10 %
190, Nash's Patent " ..... 20&10 %
201, Malleable Iron Oilers ..... 10 %
201, Patent Brass and Copper Oilers ..... 25&10 %
203, Hindostan Stone, per lb., 6c ..... 20 %
220, Extra Bench Planes ..... 20, 10&10 %
243, Livingston's Framed Wood Saws ..... 10 %
254, Solid C. S. Stone and Striking Hammers ..... 20 %
270, Bonney's Saw Filers' Vises ..... 25 %
271, Trenton Solid Box Vises, all weights, per lb. 16c
287, Worrall's Plastering Trowels ..... 20 %
293, Iron Spoke Shaves ..... 33⅓&10 %
295, Dunning's Scoops ..... 20 %
302, Manure and Spading Forks ..... 30 %
303, Hay Forks ..... 30 %
305 to 323, Hotchkiss Curry Combs ..... 20&10 %
332, Wrought Iron Flush Bolts ..... 15&10 %
338, Gate and Shutter Hooks ..... 70, 10&10 %
339, Screw Hooks and Eyes ..... 70, 10&10 %
339, Cornice " " ..... 70, 10&10 %
346, Narrow F. J. Cast Butts ..... 40 to 50&5 %
346, Broad " " ..... 50&10 %
353, Narrow Wrought Butts ..... 30&10 %
353, Broad F. J. and L. J. Wrought Butts ..... 35&10 %
354, Table Butts, Back Flaps and Inside Blind Butts ..... 30&10 %
366, Strap and T Hinges ..... 35&10 %
374, Romer's Padlocks ..... 15 %
413, Peck's Elastic End Base Knobs, Revised List ..... 10 %
413, Peck's Common Iron Screw Base Knobs, Revised List ..... net
434, Galvanized Pump Chain, per lb., 13c ..... net
435, Halter and Coil Chain ..... 20 %, gold
438, Charcoal Shield Irons, per doz., $11·50 ..... 10 %
463, Stow's Sausage Stuffers ..... 15 %
469, Fluting Scissors ..... 25&10 %
482, Thermometers ..... 50&10 %
484 to 493, Chatillon's Balances ..... 50 %
500, Hunt's Razor Straps ..... 33⅓&10 %
501, Imitation Emerson's Razor Straps ..... 33⅓& 0 %
507, Stebbin's Molasses Gates ..... 65&10 %
510, Hart's Shears and Scissors ..... 70&10 %

APPENDIX.

20, Store Door Handles, No. 70	70, 10&10 %
21, " " No. 170	70, 10&10 %
Planes, second quality	45&10 %
Lawrence Curry Combs	25 %

Stanley Works have issued the following discount sheet, dated the 6th instant. Those articles of which the price has been changed since May 14th, 1874, are indicated by a star. The most important of these changes have been already reported by us.

Bronzed Capped Butts	45 %
" Loose J'nt Butts with Ac'ns	10 %
" Loose J'nt Butts, no Ac'ns	15 %
" Narrow Butts &c	15 %
" Light Narrow Butts	15 %
" Light Inside Blind Butts	15 %
* " Parliament Butts	15 %
* " Barrel Bolts	40 %
" Flush Bolts	20 %
Bronzing Screws	20 %
Bolts, Chain	40 %
" B. K. Shutter	40 %
* " Cottage, Cast	70 %
" Hotel Chamber	35 %
* " Wro't Barrel, B. K. New List	50, 10&10 %
* " " T. K. "	50, 10&10 %
* " " P. K. "	50, 10&10 %
* " Light, Wro't Barrel, Brass Knob, New List	50, 10&10 %
Bolts, Wro't Brass Barrel	35 %
" " " Tinned Bolts	35 %
" Wrought Barrel, Brass Plated	35 %
" Canada Por. and Min. Jap'd	45&5 %
" " " Plated	50&5 %
" Wro't Flat (Steel Spring)	30 %
" " (Steel Spring)	30 %
" " Tail	30 %
* " Flush (Sunk and Proj.)	15&10 %
* " B. K. Flush (Common)	30&10 %
* " " (Ex. Heavy)	20&10 %
* " Plated K. and Side Flush	10&10 %
* " Bronzed K and "	10&10 %
* " Plated K and "	10&10 %
* " B. K. Wrought Shutter	35 %
* " Wro't Shutter, "Stanley's"	50 %
* " " "Wm. Parker"	50&5 %
" Cased Shutter	15 %
* " Shutter, T. K. Lock	15&10 %
* " " Tinned Knob	15&10 %
* " Wro't Shutter, Galvanized	30&10 %
" Southern Door	20 %
* " Wro't Square Spring, New List	50, 10&10 %
* " " Store Door, "	50, 10&10 %
* " " Square and Round Neck	35 %
" " Tower	30 %
*Butts, Back Flaps	30&10 %
* " Inside Blind	30&10 %
* " Table	30&10 %
* " Narrow	30&10 %
* " Chest	30&10 %
* " Pew Door	30&10 %
* " Broad	35&10 %
* " Loose Joint	35&10 %
* " Reversible, Our List	12½&10 %
" " Japanned	12½ %
* " Light Inside Blind, "Stanley's"	35 %
" " " "New Britain"	40 %
" L't Inside Blind, Jap'd, "Stanley's"	20 %
" Light Narrow, List of Narrow	30&10 %
" " " Jap'd "Stanley's"	30 %
" Car with Acorns	40 %
" with Acorns and Fric. Roller	40 %
" Loose Joint, with Japanned, Bronzed or Silvered Acorns	40&5 %
" Loose Joint, "	40&5 %
" Jap'd Loose Joint, without Acorns	net
* " Parliament	10&10 %
* Corner Irons	50 %
Hammers, Carpet	20 %
*Handles, Flush Chest and Drawer	40&10 %
* " Wro't Chest, "Stanley W'ks"	add 15 %
* " " "Austin Beebe"	add 10 %
" Lifting and Coffin	50 %
" Window Shutters	20 %
Hasps and Staples, Wrought	20&5 %
" Hooks and Staples, Wrought	20&5 %
*Staples, Wrought, Hand forged	20&5 %
*Hinges, H'vy & Ex. H'vy T. "Hart's Pat."	35&10 %
* " Strap and T, New List	35&10 %
* " Long Chest	35&10 %
*Hinge Hasps, Common Staples	35&10 %
*Crate Hasps, Patent Swivel Staples	35&10 %
*Hinges, Bulk, Shutter and Flask	add 20 %
" Norwich Blind	net
" Plate and Raised Blind	net
* " Rolled Plate and Raised	15 %
Japanned Screws, American Screw Co.'s New List	40 %
Knobs, Canada Sash	25 %
Staples, Floor, Bolt and Lock	45 %
*Steamboat Shutter Fasts	net
Step Ladder Joints	net
*Washers, Wrought Iron. Our List. (See Supplement). Discount 7 cents per pound.	

The manufacturers of Clothes Wringers have adopted a uniform price, and we are informed that the members of the Western Hardware Association, as well as the Eastern jobbers, have agreed to maintain the established rates. The following revised price list for Improved Universal Wringers applies to all Wringers of the same class:

REVISED PRICE LIST, NOV. 2, 1874.—IMPROVED UNIVERSAL WRINGERS.

	Size of Roll.				
	Length.	Diameter.	Retail Price.	Wholesale Prices. Less than 5 doz.	5 doz. one shipment
Family Sizes.				Each.	Each.
No. 2, "Extra" Family Size	10 in.	1⅞ in.	$8·00	$60·00	$58·00
No. 1½, Large " "	11 in.	1¾ in.	9·00	69·00	67·00
No. 2, "XX" Family Size, Cogs on both ends	10 in.	1⅞ in.	8·00	60·00	58·00
No. 1½, "XX" Large Size, Cogs on both ends	11 in.	1⅞ in.	9·00	69·00	67·00
Hotel Sizes.					
No. 1, (Usual)	12 in.	2 in.	12·00	96·00	93·00
No. 8, (Large)	14 in.	2¼ in.	16·00	130·00	126·00
Laundry Sizes.					
No. 12, (Power or Hand)	14 in.	3⅛ in.	25·00	200·00	194·00
No. 18, " "	17 in.	2¾ in.	30·00	230·00	220·00
No. 22, " "	17 in.	3¼ in.	45·00	310·00	300·00

Terms, Conditions of Sale, &c.—Time, 30 days. Interest at 7 per cent. after 30 days if payment is not made in next 15 days. Two per cent. discount for cash in 15 days. No Wringers will be sent out on commission or consignment. We are prohibited from furnishing Wringers not of our own manufacture.

N. B.—An order for five dozen must be filled at one shipment, but may include any of the above kinds or sizes. Wringers delivered at factory, New York, Boston or Providence, only.

The "Reliance" Wringer is offered at $57 per dozen for the balance of the stock at present on hand.

Trade in House Furnishing Goods, Tinners' Trimmings, etc., is in sympathy with the general dullness, and prices continue at our previous quotations.

We invite the attention of the trade to the advertisement on 9th page of T. W. Bracher, No. 77 Greene street, manufacturer of the "Constant Ventilator. These goods are well finished, and are easily inserted in light or heavy glass. The price to the trade is as follows:

Nickel and Gilt Ventilators, with Cap for Stormy Weather, in neat boxes ... $18 per doz.
Gilt only, with Cap for Stormy Weather, in neat boxes ..... 16 "

With each Ventilator is sent the method by which any one with a diamond can cut a round hole in glass (without danger of breaking), as I am now doing for a great many, and will cut for the trade, holes in glass, by the quantity of 50 or over, at 15c. each.

All orders for less than 1 doz. must be accompanied with cash.

All orders for more than 1 doz. must be accompanied with references.

A sample Ventilator will be sent by mail for the retail price, $2·50, and the difference between retail and trade price will be allowed on the next order.

The Old Colony Rivet Works, No. 116 Chambers street, have taken the agency of the Girard Rolling Mill Co., of Girard, Ohio, manufacturers of Bar Iron, Bolts, Nuts, &c. They also keep in stock and sell at manufacturers' prices a full assortment of Coleman's Celebrated Eagle Carriage and Tire Bolts.

We published last week J. Clark Wilson & Co.'s list for the balance of their stock of Wood Top Skates manufactured by the Eagle Auger and Skate Co. On page 30 of this issue their advertisement, with illustrations of some of the best styles, will be found, to which we invite the attention of our readers. The goods will be closed out in lots to suit purchasers at very low figures.

We have received the following letter, which explains itself:

70 BEEKMAN STREET,
NEW YORK, Nov. 18, 1874.

Editor of The Iron Age.—DEAR SIR:—Will you allow me sufficient space in your paper to say that I did not turn the crank (nor did any one connected with our house) of the organ that ground out the article in your issue of Oct. 29th, signed "Coffee Mill."

Thus far I have never "corresponded," though I may have been interviewed (for the purpose, perhaps, of ascertaining how much I did *not* know), but should I ever presume to give my feeble opinions to the "press," I am quite sure that my vanity, and my fondness for seeing my "name in print," would induce me, unless I am more diffident than I think I am, to subscribe myself, as I now do, Yours, very truly,

GEORGE HENRY SARGENT.

It may not be out of place, in this connection, for us also to say that the letter signed "Coffee Mill" was not written by us, nor by any one connected with this office, as has been conjectured by some. It is not our way to write ourselves letters for publication, and none of the letters we have ever printed have been in any way influenced or suggested by us.

We have received the following, which, in some of its phraseology, seems to have a familiar sound, and we cannot help feeling doubts of its genuineness. If this meeting of what may be called the middle-sized jobbers really takes place, the next step in order will be a convention of the retailers, to consider the danger to which they are exposed by the "organization" of all the jobbers. The following is the call:

ALTON, Nov. 15th, 1874.

.....

.....

Kansas City has suggested a meeting to be held in Alton, comprising the jobbers of hardware in the cities of Columbus, Dayton, Kalamazoo, Lafayette, Xenia, Bowling Green, Kansas City, Jefferson City, Mount Pleasant, Muscatine, Cedar Rapids, Minneapolis, Janesville and Alton.

The suggestion meets with general favor, and the meeting will be held in this city, commencing Nov. 31, 1874.

It is not designed to form combinations in reference to prices, but to perfect an organization and discuss such matters of general interest as may be introduced by the several delegates, with a view to protect ourselves against the ruinous prices that are quoted to our smallest customers by the jobbers in St. Louis, Chicago, Cleveland, Toledo, Detroit, Indianapolis, Cincinnati, Louisville, St. Joseph, Burlington, Davenport, Dubuque, St. Paul and Milwaukee. You are particularly requested to send a representative from your house.

Please advise me at once of your decision, and, if possible, send the name of your representative. By request, B. WARE.

We have received the following letters for publication:

To the Editor of The Iron Age: To use the idea conveyed by "Colton," in his "Lacon," I might say: "A Hardware Jobber fights before he reasons, a Hardware Manufacturer reasons before he fights, but a Hardware Drummer is not particular as to the order of precedence, but will do either to accomodate his customers. *The Iron Age* has shown that the best hardware working force would be a jobber half drunk, a manufacturer half starved, or a drummer with his belly full."

One cannot but feel amused in reading the communications of a literary nature published in your columns of late, whether assuming the shape of a series of resolutions from the "Western Hardware Board of Trade," or a self-explanatory letter from a cranky "Coffee Mill," who has a greater desire to grind up his former best customers, the jobbers, than anything else.

"Upon what meat does this our Cæsar feed
That he has grown so great?"

Look down the commercial records of the past ten or fifteen years and see the numbers of jobbers wrecked upon the sands of mercantile ambition, and you can easily answer your own question.

Now just let me say a few words to this manufacturer, who says he "has sold probably more goods in his line than any other maker of similar goods." If that is the case, he must know that without the aid of the jobbers (which it is really a gratification to hear him kindly announce he is "not at war with") he could never have occupied the presen position in the "Coffee Mill" trade with which he is anxious to credit himself.

This manufacturer's travelers are doubtless of more than one class, and paid accordingly. He probably starts the year by sending out his high priced man (as he has doubtless given up the soliciting business *himself*), who goes to the various jobbers throughout a section of country and "books their orders" for their required spring wants, at, we will say, his bottom prices, which may be (only they ain't) "fifty off," with a "special 7½ per cent.," and "we will date *your* bill May 1st, you know." Then early in the spring "Coffee Mill" starts out his second platoon of drummers, who are instructed to stop at the smaller towns, and sell any hardware man "good" enough, at discounts ranging, in the "discretion of the salesman," from 40&10 % to 50 % straight, "delivered," of course, at the nearest railroad center. Now, the *discretion* of his agent is usually about as good as that of any other such representative, and he sells all he can, in quantities of one to ten dozen, at the lowest permitted discount, and thus settles the "Coffee Mill" trade for that season—demoralizing the trade if he don't do anything else. And this course of action is true of almost all classes of hardware manufacturers, but can be said of but few other kindred branches of trade of equal respectability and cognate importance. Take an important business like the manufacture of nails and horse shoes. Suppose they started by filling the wholesale dealers full of their wares by booking orders ahead, on which their men were kept at work during the winter, and then at the first opening of spring run around among the customers of *their* customers to *peddle* their goods in *any* quantity from one keg up, and at any price. To tell the truth, the almighty dollar has grown so large in the eyes of some of our high-toned "Coffee Mills" that they feel they must have the "whole animal" or none at all.

It is no fault of the Hardware jobber *in New York* that the manufacturers have for years struggled unremuneratively among themselves for the large and growing trade of the Western cities. It is a well known fact that goods have been bought, many a time and oft, for Western markets from New York agents and Eastern manufacturers from 5 per cent. to 20 per cent. lower than the same goods were sold to Eastern jobbers, who, on the average, paid for them more promptly because more accessible. And why? Because these Western men would come on East, wanting large stocks of goods, and could dictate the price at which they expected they would buy. And if you want to see a weak market for a few days, with nervous agents trying to find out how low a price they've got to beat in order to obtain the orders, let a half dozen large buyers from the West, like B. and C., loaf around here for a few days, with their usual memoranda in their breast pockets. About that time the discounts on Butts have a withering blight, Strap and T Hinges will droop and fade, and that on Carriage Bolts begins to hide its diminished head. Such men get them at a price delivered in Chicago, St. Louis, or other cities, cheaper by far than some good cash-paying New York jobbers, doing a similar business, are purchasing, and all because the aggregate sales of the latter for the season are not ordered in such large lots a month or two in advance of their wants, to be paid for, probably, in notes running four, six and eight months, which even the successful "Coffee Mill" admits he has "had to extend one, two and three years without security."

It's the manufacturers themselves who have for years been doing the unhealthy business which has stultified the efforts of the trade; so that jobber after jobber has dropped out of the race and gone down the dark valley of despair and bankruptcy; and the few left in the field are living on their "blood and bones" in the hopes of better times, when protective duties will be *non est* and goods will be sold at a price approximating somewhere near the actual cost, so that fluctuations, such as we have had this year, of 10 to 50 per cent., will be impossible. The hardware manufacturers, as a class, have, in my estimation, no well defined or regular system of doing business. They have been known to sell large concerns, like one "out West" (that used to carry a stock of over a quarter of a million dollars), at their best "cash" discounts, delivered in the place, and take their pay in long notes, with interest added after 30 or 60 days; and then go and sell the best New York jobbers for cash at higher rates of from 2½ to 7½ per cent completely keeping the New York jobber to his "near by" trade, and shutting him out of the Western market. It is now some time since the jobbers of this city have done any extensive amount of Western trade; they have not felt like tackling the unprofitable competition existing among Western jobbers, which is more bitterly defiant of well governing rules (as their suggestions about their travelers surely attests) than it ever could be here.

And yet there *is* money in the jobbing hardware trade, properly conducted, whether in the East or West; but it must be managed in a regular and systematic manner. Each must act and have his being in the sphere that his facilities and resources makes legitimate. The Cincinnati, St. Louis, and especially Chicago and Milwaukee men, must *not* arrogate to themselves all the large buyers among the Western retailers, which they do not possess capital enough to do business with. There are enough medium and small dealers West to whom they can confine their trade, and with whom they can do a profitable and successful traffic.

But no! everything West, from building a Chicago hotel to conducting a Chicago hardware business, must be done upon a scale of grandeur that is at least one foot to the inch. They want *all* the trade—especially that class of retail buyers who can pay cash, or are deserving of 60 days, and, consequently, *should* buy either of New York houses or the manufacturers. So they quote and sell these dealers low, get paid promptly, use the money in extravagant expenses, and send on their notes to settle their accounts, and which are usually extended, &c., the result of all which is, the "Coffee Mills" of the country get disgusted with the jobbing fraternity, and go for the retailers' greenbacks themselves, as they feel that that is the *only* way they can ever expect to receive their money with any degree of certainty.

Every manufacturer in the country knows that there is more business done to the square inch of capital to-day, in many mushroom cities of the West—especially the new Chicago—than any part of the inhabitable globe, and the first poor season experienced by the trade makes them shake and tremble with a financial ague born of weak bank accounts and a fearful array of "bills payable."

How many houses among the well known staunch concerns that compose the "Western Hardware Board of Trade" have made their expenses during the past few years? And yet they could all have made money and have done a successful business if they had only kept themselves within the bounds of a legitimate trade, such as their cash resources enabled them to handle successfully, and thus have left the largest and heaviest class of retailers (with whose trade they now compete with the manufacturers instead of the New York jobbers) to make their purchases in the New York market, to which it would gravitate naturally, where money "on call" can be obtained at 2½ per cent., and where it doesn't cost "one and a half per cent. a month" to shave their customers' paper when they see fit (as they could afford to do) to take it.

Under such a state of affairs the New York jobbers would have sold these larger dealers, and rendered it unnecessary for the manufacturers to seek "green fields and pastures new" among the prairies of the West, and the trade would to-day be in a prosperous condition, seeking for other worlds to conquer, but hesitating before they decided to do so.

With the exception of a few manufacturers' such as the "Disstons" and "Russell, Jennings," &c., who have made themselves independent by compelling their goods to be sold by their best customers, with some profit, the manufacturers of hardware are a set of men who pride themselves more upon their mercantile sagacity and shrewdness than upon their commercial probity or conscientiousness.

Frequent combinations are formed, embracing powerful and weak concerns, and the powerful ones are usually the first to break them by sundry and well-known dodges, such as "allowances for freights," "credits of interest and merchandise," "extra discounts on non-competing goods;" "exchanging goods for goods," &c., &c.; and the smaller concerns in combination wonder why they are starving on orders, while their rich competitors are full of business. Every buyer of large amount of goods knows well the seductive nature of "extra discounts," "special terms," "our best *quantity* price, which we will allow *your house*, whether you take the quantity or not," &c., &c., and your country manufacturer, in his eagerness to sell you, goods, is only too full of them.

The disease under which the trade is suffering to day will regulate itself easily enough; the jobbing trade will eventually be left in the hands of those parties whose wealth entitles them to a definite grade of credit, and whose goods will be bought with the lowest discounts for legal tenders. They being able to borrow—when needing any surplus funds—at 7 per cent. to buy for cash at a price which the possession of cash should entitle them to do.

It is in the nature of things that the man who takes four months to pay for his purchases should not buy as low as the man who pays cash; and this is the rock upon which both jobbers and manufacturers split. If they will

only collate their books they will assuredly find that the longest-winded customers they have are those who have invariably paid the smallest advance on prime cost, and growled at and disputed every item of interest on an account that is *never balanced*. Yours, &c.,

H. O. P.

To the Editor of The Iron Age: I have noticed the call for, and meeting of, the Western Hardware Association, at Chicago. Having watched their action and noticed their grievances, with your permission, as a Western jobber, would like to make a suggestion or two. They make war upon the manufacturer for the way he sells his products, when some one of the Western jobbers, at the "Chicago" meeting, employs *more* traveling salesmen than any *two* factories in America. "Hardware," who made the call for the Chicago meeting, struck (unwittingly perhaps) the root of the trouble when he deplored the extent to which "traveling" to sell goods was carried on by the trade. Take his *own concern*, for example, in a city like St. Louis, employing, say, 20 traveling salesmen, on an average cost of $2500, to scour the country, and peddle out goods to the *smallest* dealers (many lines of goods at manufacturers' prices), visiting said dealers every 30 or 60 days. Thereby running in sharp competition with all the other houses East and West, and the smaller jobbers in the center of any given district.

I am of opinion that the depression of business in general, and the hardware trade in particular, will be found to exist in a different direction from any named at Chicago, while many causes exist, doubtless, to make business profitless. One chief cause may be found in the fact that a few of the Western jobbing houses want to do the whole business of the country, and in order to do it they want to control the manufacturing of goods, and then fill the country with traveling men to work off *over purchases*, or, in jobbing parlance, *quantity* purchases. The aforesaid traveling men go to work to *beat* everybody's prices and sell *all* the goods, and make unto themselves a great name (among the jobbers), hoping thereby to get increased salaries. Hence, as a very natural result, there is in the jobbing hardware business an "irrepressible conflict" going on from year to year, nobody making any money (but the travelers), and nobody to blame (but the jobbers).

I submit that all recognized points of distribution (large or small) have a legitimate mission, which is to supply the region tributary thereto, and when the "large jobbers" in the "large cities" shall recognize that fact, and act accordingly, very much will have been done to put business on a healthy basis. In this connection I would like to drop a thought, suggested by "Coffee Mill's" letter. The smaller jobbers all over the country have complained at the discrimination of the manufacturers in favor of the larger jobbers for years, inducing the large operators, by what is called "quantity" discount, to take a "round lot" of any given article at 5 to 15 per cent. lower figures than they would sell the "smaller jobber," thus enabling the "large one" to show his "generosity" by underselling the manufacturer in unloading to the small jobber.

As soon as the manufacturers refuse to make "quantity" discounts, but simply make a price for retailers, and a reasonable discount for jobbers (great and small), very much will have been done toward retarding the grumbling spirit which is rife in our American business—I mean the disposition to overbuy. One dealer does it, and the other thinks he is compelled to in order to get the same figures. And this overbuying is caused largely by the manufacturer making what is called "special," or "quantity," discounts to *large* buyers. The *country* consumes *no more* goods because some city jobber get an extra 5 per cent. We close with "Coffee Mill's" motto, applicable to manufacturer and jobber, "Live and let live."

Yours, etc.,

WESTERN JOBBER.

The following circulars need no explanation from us. We call attention to the advertisement of William Lawrence Stroud on the 4th page.

LIVERPOOL, Oct. 23, 1874.

SIR: We beg to inform you that the partnership heretofore existing between ourselves and Mr. W. Lawrence Stroud, in New York, under the firm of Jevons, Stroud & Co., has this day been dissolved by mutual consent.

Mr. Stroud will collect all outstanding accounts, and referring to the circular annexed,

We are, yours, respectfully,

JEVONS & Co.

LIVERPOOL, Oct. 23, 1874.

SIR: Referring to the annexed circular, announcing the dissolution of the late firm of Jevons, Stroud & Co., of New York, we beg to inform you that we have this day appointed Mr. W. Lawrence Stroud as our agent for the sale of Iron in the United States and Canada.

Any orders transmitted, either direct or through him, will receiver our very best attention, and soliciting the favor of your continued support, and thanking you for all past favors,

We are, yours, faithfully,

JEVONS & Co.

Nos. 8, 10, 12 and 14 DUTTON STREET, LIVERPOOL, October 30, 1874.
(And 9 Stevenson Square, Manchester.)

SIR:—We beg to inform you that we have appointed Mr. Wm. Lawrence Stroud, late of the firm of Messrs. Jevons, Stroud & Co., New York, as our sole agent in the United States for the sale of Tin and Terne Plates, Tinned Sheets, Block Tin, Copper, Lead, Zinc and Tinman's tools and fittings.

Our firm has been in the Iron and Tin plate trade upward of a century, and we can with confidence promise that any business entrusted to us will be executed at the lowest prevailing prices, and carried through with knowledge and experience.

We shall offer no private brands. Every parcel of Tin Plates offered you will be under the maker's own brand.

Mr. Stroud will wait upon you in a few days, when we hope you will favor him with an opening order. Yours, faithfully,

W. S. & N. CAINE.

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104 JOHN STREET, NEW YORK, Nov. 12, 1874.

Sir: Referring to the enclosed notice of dissolution of the firm of Jevons, Stroud & Co., in which I was resident partner, I have the pleasure to inform you that I have this day commenced business in my own name as Iron, Tin Plate and Metal Broker, and general commission agent. I shall continue to represent Messrs. Jevons & Co., of Liverpool, as their sole agent in the United States and Canada for the sale of all descriptions of English Iron. By the enclosed circular you will note that the old established house of Messrs. S. & N. Caine, of Liverpool, have favored me with their sole agency in the whole of the United States, for the sale of Tin and Terne Plates, Tinned Sheets, Block Tin, Copper, Lead, Zinc, &c.

I have also undertaken, as agent in New York State, the sale of Soda Ash, Caustic, Soda, &c., in behalf of Messrs. Golding, Davis & Co., Limited, of Liverpool.

I shall take an early opportunity of visiting you, meanwhile, soliciting the favor of your esteemed commands, which shall always receive my best attention.

I am, Sir, yours, respectfully,

WM. LAWRENCE STROUD.

BRITISH IRON MARKET.

(Specially reported by cable for The Iron Age.)

WEDNESDAY, Nov. 18, 1874.

Scotch Pig.—Since last report there has been a stronger feeling in the market, but toward the close it receded, and prices are weak.

Manufactured Iron.—The demand has fallen off and the market is dull and prices nominal, with very little business doing.

Rails.—The market is very dull, with no demand whatever, and quotations are nominal.

IRON.

American Pig.—There is nothing new in the market. The demand seems to be less than last week, and the disposition to press sales is, we think, more strongly marked than it has been for a long time. The companies seem disposed to sell a good customer even at low prices, rather than let him go elsewhere. We hear of no large sales this week, business being confined to retail lots. We quote Foundry No. 1. $27: Foundry No. 2, 25 @ $26; Gray Forge, $22 @ $24. The Crane Iron Co. have denied, both to us and to others, the truth of the report of a sale of their No 1 Foundry Iron at a price equal to $25·75 at Hoboken, published by us last week. They say in one of their letters to us, that they "have sold a pipe "concern recently 1000 tons No. 1 Extra Crane "Iron, but the price was $25 per ton at Catasauqua on our furnace bank." This may be another transaction. Our information is explicit, and from a source we cannot doubt, that they sold a pipe concern 1015 tons No. 1 Extra Iron on their furnace bank for $24,000, cash, which, we are informed, is equal to $25·74 at Hoboken.

Scotch Pig.—Scotch Iron is well held up in this market, with small stocks and moderate quantities imported. The strike of the stevedores is now interfering with the unloading of Iron from vessels in port. This strike will probably compel some of the steamers to lay over for a week. The following are our quotations: Coltness, $40 @ $41; Glengarnock, $39 @ $40; Eglinton, $37. It is not disguised by even those most interested in the importation of Scotch Iron that the price will probably be lower by January.

Bar.—There is no change since last week. We still quote 3·8 for Eastern mills.

Rails.—We quote American, $50 @ $55 at works; Welsh, $48 @ $50, gold. Steel Rails are now held at $80 in the West. They have been sold at $75 in the East.

Old Rails.—We hear of the sale of 250 tons at $28·50, cash, while most of those here are held at $30—a price which seems above the views of buyers.

Scrap.—There is nothing to report.

METALS.

Copper.—Sales of the week sum up 300,000 pounds Lake, mostly on the spot and to consumers, at 22⅝c. and 22¾c., cash. Dealers began selling a little, but soon desisted. The market is strong at 22¾c., cash. For delivery between 15th and 31st proximo, 23c. is offered, while January to April, inclusive, has been paid 23½c., 24c. now being insisted upon. Baltimore we quote 22⅝c., nominally. Our Copper mining companies have, most of them, sold out, and from day to day, and from month to month, both in Europe and here, the fact is becoming more evident that the demand for armament takes the Copper out of the market not to return to it. A Copper Still will sooner or later return to market in the shape of Old Copper, and thus a great many other articles; but once you convert the metal into cartridges, or for other warlike purposes turn it into brass, and it may be considered absolutely consumed. The excitement in Europe goes on unabated under the influence of the rapidly diminishing visible supply. On the 1st May, this year, the stock in England, including afloat and chartered, was 36,903 tons, price for Chili Bars £74; June 1, 34,238, price £75; July 1, 32,275, price £78; August 1, 32,691 and £76; Sept. 1, 33,159 and £78; Oct. 1, 31,059 and £81; and Nov. 1, 29,516 and £84; while to day, by direct cable dispatch to our office, we learn that Chili Bars have been paid £89, and Best Selected £97, while the tendency remained upward. The fact is that Chilean production had been estimated at 48,000 tons for 1874, while now it is valued at 41,700, and no more. There are few articles of merchandise backed by such convincingly powerful statistical arguments as is here shown with respect to Copper. Looking at Chili fine Copper *alone*, at Liverpool and Swansea, it will be seen that the stock, Oct. 30, was 12,700 tons fine, against 14,200, Oct. 15, 1874, and 22,500, Oct. 31, 1873; in other words, it is nearly 10,000 tons short of what it was a year ago. In addition to the foregoing interesting items by mail from London, dated Nov. 7, we have our usual Valparaiso letter *via* Panama, dated October 16, and reading as follows: "The telegraph, cut by the Argentine revolutionists, still keeps silent, but Copper in bars has nevertheless been in good request, and as the metal attracted a widespread interest, prices were driven to $16·75 on shore here, and to $17·30 on board off the coast, at which figures we close firmly. Sales 23,175 quintals Bars. Regulus—on the 7th instant 5000 quintals sold at $7·20, on board; to-day $7·25 would be paid. I quote Regulus, 50 per cent., $7·25, and Ore, 25 per cent., $3, both offering prices. Exchange, 44d. @ 44¼d., 60 days London, and 44¼d. @ 44½d., 90 days." The manufactures of Copper are sustained as follows: New Sheathing, 28c. for over 12 oz.; Bolts and Braziers, 30c., and Nails, 37c. @ 38c.; Bronze and Yellow Metal Sheathing, 21c. @ 22c.; Yellow Metal Bolts, 28c.; and Yellow Metal Sheathing Nails, 22c.

Tin.—The market has been steady, but very little has been done; there have been plenty of rumors of sales, but they turn out to have amounted to nothing beyond a small jobbing trade. We quote in gold as follows: Straits, 21½c. @ 22c.; English Refined, which is quite scarce, 21¾c. @ 22c.; L. & F., 21½c., and Banca, 25½c. Small lots Straits have brought 23c., gold. No future sales are reported. The quotation from London per cable to-day is £94. 10/ for Straits, an improvement of 10/ for the week. Singapore, this day: "Value here, New York parity, 21½c., gold. Market dull, but not much pressure to sell." London, Nov. 6, 1874, mail account: "The stock of foreign Tin in London and Holland is thus estimated: 8149 tons at present, against 7243 and 4258 in 1873 and 1872. The market, which throughout the past week was steady, has throughout this week been marked with greater activity, and an advance in price has been established, the amount of business has increased day by day, and the position of the market is very strong. The deliveries are remarkably good, and higher prices may be expected to rule. The next sale of Billiton at Batavia, 9000 piculs, will take place Dec. 14. *Tin Plates.*—The market is firm, and many of the makers are well supplied with orders." Straits Tin for the week had from £92. 10/ risen to £93. 10/, since when, as we have shown, it has improved another pound sterling. Tin Plates in our own market have been as quiescent as heretofore. We quote them as follows: I. C. Charcoal, $9 37½ @ $9·75, gold, per box; I. C. Coke, $7·37½ @ $7·75; Coke Terne, $6·75 @ $7; and Charcoal Terne, $8·25 @ $8·75, all gold.

Lead.—The same listless state of affairs hitherto reported has continued in Domestic Lead, of which barely 100 tons, all told, have changed hands in a small way, at between 6¼c. and 6·30c., gold, while the government has done nothing, maintaining as it does its previous figure of 6·35c., gold. Foreign has been offered on the dock at 6⅝c., gold; from store it is bringing 6¾c., @ 6·80c., gold, without much transpiring therein. The London market by mail, Nov. 7, is reported firm at £23 for soft English Pig, cabled ten shillings better since; ditto Spanish without silver, £22. 10/ @ £22. 15/; ditto with silver, £22. 5/. Manufactures of Lead are steady here. Bar, Pipe and Sheet at 8¾c., less 10 per cent. to the trade.

Spelter and Zinc.—Domestic Spelter continues as dull as ever, and moves off in but small quantities as needed. Nominally the price remains 6⅝c., currency, but cash in hand it may be had, in all likelihood, at 6¾c. @ 6·65c., currency. Notwithstanding the strong accounts from Europe, it is difficult to move Foreign at the lately enhanced limits, in view of the dejected state of the domestic article, and we have to repeat but nominally our last quotation, which was 6¾c. @ 7¼c., gold, for Silesian, the European limits here remaining for W. H., 7¼c., gold; C. G. H., 7c., ditto; and Silesian Union, 6¾c., all gold. The London mail, dated Nov. 7, brings the following: "Stock here Nov. 1, 390 tons; in Hull, 1160; and in Grimsby, 303; total, 1852 tons; as against 1683 tons Oct. 1, and 1875 Nov. 1, 1873. Silesian is quoted £24 to £25." The foregoing goes to show that, after all, England is not as light stocked as we had been made to infer from late reports from that quarter. Sheet Zinc is quiet at 8¾c., gold.

Antimony.—Nothing of further special interest has transpired. The market is quiet and steady at 12½c., gold, without overmuch doing in it.

COAL.

The demand for Coal, although the retail trade is somewhat active, is continually declining. The various companies have agreed to decrease the supply of Coal for the month of November 25 per cent. at competing points in the market.

The quantity sent from the Schuylkill region for the last week by rail was 96,664 tons; by canal, 29,967—for the week, 126,617 tons, against 105,249 for the corresponding week last year. Increase 21,368 tons over the corresponding week last year, but a decline of 38,235 tons compared with the quantity sent to market last week.

The supply sent from all the regions for the week was 443,178 tons Anthracite, and 72,394 Bituminous—for the week 515,572 tons, against 447,088 for the corresponding week last year. Increase, 28,484 tons, but falls short of the supply last week, 84,129 tons.

The supply sent from all the regions so far this year foots up 19,248,075 tons against 20,086,177 to corresponding period last year; decrease, 838,102 tons. The decrease in Anthracite is 850,961 tons. While the Anthracite trade is on the decrease, compared with last year, the Bituminous trade is diminishing.

It will be seen that the quantity sent for the last week, compared with the first week in November, shows a falling off of 38,235 tons, and will no doubt continue to decline until the balance of the season, as some of the shippers have received orders to reduce their shipments.

The following are the prices of the various kinds of Coal from the different regions for the balance of the season, delivered at the shipping ports near New York. These prices will prevail until January, at least, with the exception that a small reduction may be made on Lump and Broken used in furnaces:

	L.	Str.	Gr.	Egg	Sto.	Cht
	$	$	$	$	$	$
D. & H. Canal Co.	5 55	5 65	5 75	5 90	6 40	5 35
Pittston	5 55	5 65	5 75	5 90	6 40	5 20
Scranton, Elizabethport	5 55	5 65	5 75	5 90	6 40	5 35
New York Coal Exch'ge	6 35	....	6 30	6 30	6 45	5 50
Old Co. Lehigh	6 50	....	6 45	6 45	6 60	t 65
" Room Run	6 00	....	6 00	6 00	6 35	5 35
" Honey Brook	6 35	....	6 30	6 30	6 45	5 50
Spring Brook, Lehigh	6 35	....	6 30	6 30	6 45	5 50
Wilkesbarre	5 55	5 65	5 75	5 90	6 40	5 35
Plymouth Red Ash	....	....	5 75	5 90	6 50	5 35
Wyoming Coal Association at South Amboy						
Susqa. Coal Co. "	5 55	5 65	5 75	5 90	6 50	5 35
Hillside Coal and Iron Co	....	....	....	....	....	....
Bonnell's Wyoming	....	....	....	....	....	....
Harleigh	6 35	....	6 30	6 30	6 45	5 50
Duncan's Laurel Dale	6 35	....	6 30	6 30	6 45	5 50
Kingston	5 55	5 65	5 75	5 90	6 40	5 35
Cross Creek	5 95	5 95	6 25	6 25	6 45	....

The Bituminous trade still continues very dull, and prices are somewhat lower. We quote: Cumberland, $6·25 @ $6·75; West Virginia, $7·40 @ $7·65; American Gas, $7 @ $7·75; James River Steam, $6·25 @ $6·50; Pennsylvania and Westmoreland, $7·50 @ $7·65; James River Carbonite, $9 @ $11; American Cannel, $12 @ $14.

In foreign Coal there is very little doing, and prices remain without change. Our quotations are as follows: Liverpool House Cannel, $17 @ $18; Liverpool Gas, $10 @ $11; Newcastle Gas, $8; Scotch, $8.

The Coal transported over the Cumberland Branch Railroad during the week ending November 14, 1874, amounted to 6579 tons, as against 6302 tons shipped in the corresponding period of last year, showing an increase of 277 tons. Over the Cumberland and Pennsylvania Railroad, for the same period, the shipments were 35,407 tons, against 54,704 tons shipped in 1873, a decrease of 19,297 tons.

OLD METALS, PAPER STOCK, &c.

The market for Old Metals has been a trifle more active than last week, and business was very brisk in some departments. Prices, however, remain about the same, with the exception of Lead, solid, which has advanced ⅛ a cent. a pound. The Rag and Paper Stock markets still continue dull, and prices display weakness. The purchasing prices offered by the dealers are as follows:

Old Metals.—Copper, 16c. @ 17c. per lb.; Yellow Metal, 11c.; Brass, 10c. @ 12c.; Composition, heavy, 15c. @ 14c.; Lead, solid, 5¼c.; Tea Lead, 4c.; Zinc, 4½c. @ 5c.; Pewter, No, 1, 19c.; do., No. 2, 8c. @ 12c.; Spelter, 5c. @ 5½c., Wrought Iron, 1¼c.; Sheet do., ½c.; Cast, do., ⅓c. @ ¾c.; Machinery, do., ¾c.

Rags, &c.—Canvas, Linen, 5c. @ 5½c.; do. Cotton, No 1, 6c. @ 6¼c.; No. 2, 2½c.; White, No. 1, 6c.; No. 2, 4c.; Colored, do., 2c. @ 2½c.; Mixed, Woolen, 2c. @ 3c.; Soft, do., 4½c. @ 5c.; Gunny Bagging, 1c.; Jute Butts, 1¾c. @ 2c.; Kentucky Bagging, 3c.; Book Stock, 3c.; Waste Paper and Scraps, 1½c.; Kentucky Bale Rope, 4c.; Oakum Junk, No. 1, 4½ @ 5c.; do. No. 2, 3c.; Tarred Shaking, 1c. @ 1½c.; Grass Rope, 3c. @ 3¼

IMPORTATIONS.

Of Hardware, Iron, Steel and Metals into the Port of New York, for the week ending November 17, 1874:

Hardware.

Beam & Murray, Casks, 4
Chains, cks., 41
Bainbridge H. & Co. Packages, 3
Barstow E. W. & Sons, Chains, 11
Chains, cks., 4
Boker Hermann & Co. Packages, 10
Arms, cs., 20
Chains, cks., 100
Brown Wm. Anvils, 2
Degraw, Aymar & Co. Chains, 8
Chains, cks., 12
Cases, 1
Chains, lengths, 8
Erie Railway Co. Cases, 2
Friedmann & Lauterjung Mdse. pkgs., 3
Field A. & Co. Cases, 23
Fuller Bros. Chains, cks., 36
Gueutal Geo. & Sons, Cases, 23
Harris E. T. Packages, 2
Hecht Bros. Packages, 1
Hilger E. & Sons, Chains, cks., 30
Cases, 1
Laughland & Co. Wire, pkgs., 20
Lau & Garlichs, Packages, 3
Mason John W. & Co. Wire rope, coils, 3
Merchants' Dispatch Co. Arms, cs., 5
Manning & Bowman, Packages, 6
Phelps, Bloom & Brown, Cases, 2
Rosenfield Bros. & Co. Cases, 2
Spies, Kissam & Co. Cases, 1
Tomes & Co. Cases, 2
Turnor R. A. Chains, cks., 14
Schoverling & Daly, Mdse. pkgs., 2
Van Wart & McCoy, Cases, 6
Irons, cks., 1
Anvils, 1
Wiebusch F. Chains, 10
Chains, cks., 23
Windmuller L. & Roelker Arms, cs., 21
Order. Packages, 21
Files, cks., 1

Iron.

Baix Bros. Scrap, tons, 116⅕
Scrap, wrought, cks., 7
Scrap, cast, tons, 20
Carus L. E. Scrap; wrought, bxs., 56
Cast, tons, 22
Laughland & Co. Hay bands, bdls., 900
Naylor & Co. Scrap, bxs., 120
Oelrichs & Co. Casks, 240
Providence Tool Co. Bars, 61
Piersons & Co. Rods, bdls., 144
Order. Scrap, cs., 840
Bars, 1260
Pig, tons, 600
Bundles, 1510
Iron wire, bdls., 273

Steel.

Brown Wm. Cases, 30
Drexel, Morgan & Co. Bars, 115
Hogan John, Casks, 13
Bundles, 14
Hugill Chas. Cases, 2
Bundles, 87
Naylor & Co. Cases, 31
Tires, 8
Providence Tool Co. Cases, 2
Pierson & Co. Bundles, 287
Cases, 1
Scott Thos. & Co. Bundles, 150
Woodford W. O. Cases, 82
Bundles, 10
Order. Bundles, 184

Metals.

Bruce & Cook, Tin plates, bxs., 1235
Baix Bros. Scrap, zinc, pkgs, 51
Scrap, lead, cks., 2
Scrap, lead, bbls., 4
Barthold R. R. Scrap, copper, bxs., 22
Byrne Joseph & Co. Tin and terne plates, bxs., 945
Tin plates, bxs., 250
Haxtum B. Lead, bars, 5746
Lead, pigs, 2300
Naylor & Co. Tin plates, bxs., 150
Phelps, Dodge & Co. Tin plates, bxs., 12,923
Sheet zinc, cks., 247
Zinc, cks., 298
Wheeler & Co. Tin plates, bxs., 245
Order. Lead, pigs, 4166
Lead, bars, 3
Tin and terne plates, bxs., 2663

PHILADELPHIA.

PHILADELPHIA, Nov. 17th, 1874.

Trade continues without vitality in Pig metal, and prices are as low or lower than at any time since the panic. The fact that so many furnaces continue blowing at the very low price for Iron seems to astonish everyone. The mills, in the unsettled condition of prices, will not naturally buy in larger quantity than is absolutely necessary, and each expects to get Iron lower than at the previous purchase. Hence the extraordinary condition of trade, which no one seems able to explain. In Bars there is very little doing, with a continuance of the cutting in prices from the West, and sales here made to suit these prices. In Rails there is more movement than in any other branch of trade, but scarcely as much as noted for the two weeks previous. We hear of some negotiations for Steel, however, which are of considerable amount, and it is certain that there are more inquiries for Iron Rails than there have been for some time. Prices in every grade of Iron, however, favor the buyer, and may be quoted as follows:

PIG METAL.—No. 1 Foundry, $27 to $28; No. 2, $25 to $26; Gray Forge, $24; White and Mottled, $18 to $20.

BARS.—2·8 cents per pound.

RAILS.—$50 @ $55.

OLD RAILS—$28 to $30.

SCRAP—$32 to $33.

The sales include also 1000 tons White Iron at quotations. Sales, Pig Iron, some 3000 tons, principally No. 2 and Forge, at about quotations, with probably more small sales for founders' uses than usual. Also in Rails the closing of negotiations for 20,000 tons Texas account, noted last week, and sales of 800 tons 56s for Western delivery. In Muck Bar, always an indication of improving business, we note sales of 2000 tons Boiled Bars at private terms. In Old Rails we hear of sales of 500 tons at $29, with several larger lots offering for less.

PITTSBURGH.

PITTSBURGH, Nov. 16, 1874.

PIG IRON.—There is no improvement to note in trade; on the contrary, instead of improving, it appears to be growing worse and worse, and the market is becoming more demoralized than ever. Notwithstanding there is little or no stock in the hands of consumers the demand is very light, and the general tone of the market continues in buyers' favor; it is true, the offerings are not large, but sellers fully comprehend the situation, knowing full well that any attempt to force the market could not be productive of any good, but would tend to make matters still worse. And while it is true that the stock in the hands of consumers, as already stated, is small, unusually so, it should be borne in mind that the stock in the yards of commission merchants was probably never before as large; and, furthermore, there is a large amount on the furnace banks, the owners preferring to carry it at home to placing it in the hands of commission men, as he can do it at a much less expense. The receipts have fallen off somewhat recently, and the most of that coming forward is being placed on former contracts, but the supply, as already intimated, is largely in excess of the demand, and unless the production is considerably reduced this will continue, as it is pretty evident, that there is more being produced than is being consumed. Prices continue weak and drooping, the best evidence of which is that several sales were reported on private terms this week; $25, 4 mos. is still regarded as the ruling price for standard mill Irons, but in the present condition of the market it would be difficult to dispose of anything like a round lot at almost any price, notwithstanding prices are lower than they have been since before the war. Once the feeling begins to prevail that the market has reached hard pan, a speculative demand will no doubt be developed, as money is easy, and Pig Iron is considered a good article to speculate in, as it requires no insurance, is too heavy to steal or be carried off by floods, and, in addition, it is an article that will always be wanted.

QUOTATIONS.

No. 1 Foundry	$27 00 @ 28·00—4 mos.
No. 2 Foundry	26·00 @ 27·00—4 mos.
Gray Forge	24·50 @ 25·00—4 mos.
White and Mottled	22·00 @ 23·00—4 mos.
Hot Blast Charcoal	30·00 @ 35 00—4 mos.
Cold Blast Charcoal	40·00 @ 50·00—4 mos.
Charcoal Blooms	75·00 @ 80·00—4 mos

MANUFACTURED IRON.—The general position of the market for all kinds of finished Irons remains substantially as noted in my last report, excepting that prices, in sympathy with the raw material, are weak and drooping. Merchant Bars may be quoted at $2·40 to $2·50, usual time, with rumors of orders having been accepted at still lower rates. Some of the mills continue to work up to their full capacity, while others again have been obliged recently to change from double to single turn.

NAILS.—The Nail trade does not improve, nor is it to be expected until after the opening of the new year, as business in this line is always dull at this particular time. Some of the factories are working, while others are idle, and none of them are running full time; and a general suspension before long is not improbable. Prices are still maintained—$3·35, 60 days, with the usual discount of 2 per cent. for cash.

STEEL.—There is nothing new to record in regard to this department of trade. Business is slacking off, and while some of the mills are working full, others are not.

SCRAP IRON continues very dull, and the indications are that business in this line will not improve much, if any, until the spring trade opens up. Prices weak, but nominally unchanged.

ANOTHER CONFERENCE BETWEEN THE PUDDLERS AND MANUFACTURERS IN REGARD TO A REDUCTION IN WAGES—STATEMENTS MADE ON BOTH SIDES.—Another meeting of the Iron manufacturers and puddlers took place on the 14th, to hear the report from the committee appointed to confer with the puddlers, and agree if possible upon a scale of reduced prices to be paid for boiling iron. The meeting was largely attended by manufacturers, showing that there is a deep interest taken in the matter. Mr. Bailey, the chairman of the committee, reported that the proposition made to the puddlers, in behalf of the manufacturers, had been well considered, and in view of existing circumstances were the best that could be offered. Their proposition was that with iron at three cents they would pay $5 per ton for boiling; and for a two and a half cent card, $4·50. Whenever the card should go above three cents, then the present rates, with which the puddlers are satisfied, should again prevail. To this boilers would not agree, neither did they submit any proposition. The matter was discussed at considerable length, pro and con, the Puddlers Union being represented by the president, Mr. Harris, but nothing definite arrived at. More conferences were arranged to take place this week, and it is hoped that the matter will be satisfactorily and amicably adjusted, as a strike just now, with winter just opening, would be a serious matter indeed.

The Pittsburgh *Commercial*, of November 14, says: The offers to sell below $25, referred to in our report last week, seem to have had the effect to cause a stand off between the sellers and buyers—for we can learn of no sale of Standard Iron at less than $25, 4 mos.—and the sales reported are so meagre that it would indicate an unwillingness to buy unless at a reduction from former rates. The uncertainty as to the result of the negotiations between the mill owners and the workmen may have something to do with the slack demand, as few firms are willing to purchase stock now that they are not sure of having it worked up promptly. We are reported the following sales:

BITUMINOUS COAL SMELTED FROM LAKE SUPERIOR ORE.

200 tons gray forge	$25·00—4 mos.
200 tons, strictly open gray	private terms.
150 tons No. 2 foundry	25·75—4 mos.
100 tons gray forge	25·00—4 mos.
100 tons white	private terms.
20 tons No. 1 foundry	26·50—4 mos.
10 tons No. 1 foundry	27·00—4 mos.

CHARCOAL.

37 tons No. 1 foundry, Hanging Rock	$34·00 @ $36·00—4 mos.
20 tons cold blast, Hanging Rock	56·00—4 mos.
10 tons No. 2 foundry, Hanging Rock	32·00—4 mos.
10 tons coal blast charcoal	45·00—4 mos.

CONNELLSVILLE COKE.

100 tons gray forge	$25·00—4 mos.

CLEVELAND.

Messrs. READ & DICKEY, Iron Brokers, under date of Nov. 16, write us as follows:

PIG IRON.—The same lifeless condition, as reported in our last, still continues. As the season of navigation draws to a close, those interested in ores and Pig Iron are figuring up the shipments for the season and the stocks left on hand. Although shipments of ore have been only about 60 per cent. of last year's shipments, there are no fears of a scarcity, and the demand continues light, with actual buying prices for Pig metal somewhat below quotations. This state of affairs has so long continued that some change for the better is very much to be hoped

but not much to be expected for some time yet. We have no change to make in prices.

CHARCOAL PIG IRON FROM L. S. ORE.

Nos. 1 and 2	$31·00 @ 32·00—4 m.
No. 3	33·00—4 m.
No. 4	34·00—4 m.
No. 5	36·00—4 m.
No. 6	38·00—4 m.
Bessemer Metal, Charcoal	32·00—4 m.
Bessemer Metal, Bituminous	28·00—4 m.

BITUMINOUS PIG IRON FROM L. S. ORE.

No. 1 Foundry	$28·00—4 m.
No. 2 Foundry	27·00—4 m.
No. 1 Gray Forge Open Red Short	25·50—4 m.
Close " or Neutral	24·50—4 m.
White and Mottled	22·50—4 m.

FOUNDRY IRONS FROM BLACK BAND AND NATIVE ORES.

Massillon No. 1	$33·00—4 m.
Massillon No. 2	31·00—4 m.
"New Gartsherrie" No. 2	33·00—4 m.
Muck Bar	$44·00—60 days.
Iron Rails, according to section	$56·00 @ $60·00—cash.
Steel "	85·00—cash

MANUFACTURED IRON.—The market remains in *statuo quo*, excepting as some maker is in want of orders and goes one notch lower in the scale to secure it. Buyers have it all their own way, whenever such are found, but they are decidedly few and specifications are small. There seems little prospect of a revival of the demand until after the holidays at least.

CINCINNATI.

Messrs. L. R. HULL & Co., under date of Nov. 16, write us as follows: PIG IRON.—Market quiet and nominally unchanged. There is only a small consumptive demand for Foundry Irons. The state of the Bar Iron trade continues unsatisfactory, and the mills are not encouraged to buy freely, giving us a dull market for Forge Irons. Car Wheel Irons unchanged and heavy.

HOT BLAST CHARCOAL.

Hanging Rock	No. 1 ₱ ton	$30·00 @ 32·00—4 mos.
" "	No. 2	28·00 @ 29·00—4 mos.
" "	Forge	26·00 @ 27·00—4 mos.
Tennessee	No. 1	29·00 @ 30·00—4 mos.
"	Forge	26·00 @ 27·00—4 mos.
Alabama	No. 1	29·00 @ 30·00—4 mos.
Missouri	No. 1	30·00 @ 32·00—4 mos.
"	No. 2	28·00 @ 29·00—4 mos.

HOT BLAST STONE COAL.

Missouri	No. 1 ₱ ton	$29·00 @ 30·00—4 mos.
"	Forge	26·00 @ 27·00—4 mos.
Ohio	No. 1	28·00 @ 29·00—4 mos.
"	Forge	25·00 @ 26·00—4 mos.
Scotch Pig, No. 1		

COLD BLAST CHARCOAL.

Hanging Rock Car Wheel	₱ tn.	$40·00 @ 50·00—4 mos.
Missouri	" "	43·00 @ 45·00—4 mos.
Kentucky	" "	43·00 @ 45·00—4 mos.
Tennessee	" "	40·00 @ 45·00—4 mos.
Georgia	" "	40·00 @ 45·00—4 mos.
Alabama	" "	40·00 @ 45·00—4 mos.
Machinery and Forge		40·00 @ 45·00—4 mos
Blooms		75·00 @ 90·00 —4 mos.

LOUISVILLE.

Mr. GEO. H. HULL, under date of Nov. 16, writes us as follows: The market is dull at quotations, and round lots cannot be sold except at some concession in price. There is not much disposition to force Iron on the market, and the sales are limited. The usual time, 4 mos., is allowed on the quotations below:

HOT BLAST CHARCOAL.

No. 1 F'dry, from	Hanging Rock Ores	$30·00 @ 33·00
" 2 "	" "	27·00 @ 28·00
" 1 Forge,	" "	25·00 @ 26·00
" 1 F'dry, from	Tennessee Ores	28·00 @ 30·00
" 2 "	"	26·00 @ 27·00
" 1 Forge,	"	25·00 @ 26·00
" 1 F'dry, from	Alabama Ores	28·00 @ 30·00
" 1 "	Iron Mountain Ores	30·00 @ 33·00

HOT BLAST STONE COAL.

No. 1 F dry, from	Missouri Ores	30·00 @ 32·00
" 2 "	"	28·00 @ 30·00
" 1 Forge,	"	27·00 @ 28·00

COLD BLAST CHARCOAL.

Car Wheel from	Hanging Rock Ores	45·00 @ 50·00
" "	Tennessee Ores	43·00 @ 45·00
" "	Alabama Ores	44·00 @ 46·00
" "	Georgia Ores	44·00 @ 46·00
" "	Missouri Ores	43·00 @ 45·00
" "	Kentucky	43·00 @ 45·00

BALTIMORE.

Messrs. WYETH & BROTHER, Iron and Steel merchants, South Charles and Lombard streets, report us the following prices under date of Nov. 17: We have to report a weak and drooping market, with a softening in prices on Bars, Bands, Hoops, &c. Annexed find revised list:

AMERICAN REFINED BAR IRON.

1 to 6 wide by ⅜ to 1 thick	2·8 to 3 cts. per lb.
1 to 4½ wide by 1½ to 2 thick	
Round and square, ordinary sizes, from ⅜ to 2 inclusive	2 9-10 to 3 1-10c. "
Hoop Iron, 1¼ wide and upward	4½ to 4¾c. "
Band Iron, from 1¼ to 4 in. wide	3¾ to 4¼c. "
Horse Shoe Iron ¾ to 1 wide by ⅜ to ½ thick	4½ to 5c. "
Norway Nail Rods	7¼ to 8¼c. "
Black Diamond Cast Steel, Flats, Squares and Octagon, ordinary sizes	16½c. "
Machinery Steel	11½c. "
Cast Spring Steel	10½c. "
Homogeneous Steel Plate	13c. "
Perkins' Horse Shoes, per keg of 100 lbs	$5·87½
" Mule Shoes " "	6·87½

Common Horse Nails, from 14c. to 18c per pound.

10	9	8	7	6	
Putnam Horse Nails	23	24	25	26	28c. per lb.
Globe Horse Nails	23	24	25	26	28c. per lb.

R. R. Spikes 5½ by 9-16 at 3¼c to 4c. per lb.

Messrs. HOFFMAN, THOMPSON & CO., Iron commission merchants, 23 and 25 South Frederick street, under date of Nov. 17, report the Pig Iron market as follows: We have no change to report in our quotations of last week. The market remains inactive, and sales small for immediate consumption.

Baltimore Charcoal Pig Iron	$35·00 @ 38·00
Virginia " "	35·00 @ 37·00
Alabama " "	32·00 @ 34·00
Anthracite No. 1	29·00 @ 30·00
" No. 2	26·00 @ 28·00
" No. 3	25·00 @ 26·00
White and Mottled	18·00 @ 20·00

FOREIGN.

FRANCE.

(*Moniteur des Interets Materiels.*)

PARIS, Nov. 1, 1874.—*Metals.*—The apprehensions of a continued hardening tendency of the money markets of Europe have, in a measure, been allayed, and a better feeling begins to prevail in trade circles. A good many elements calculated to promote a healthy revival in business may be enumerated to show that the immediate future harbors a promise of good times approaching. The crops have been bountiful, India also is recovering from the famine, Continental and American financial matters have a sounder foundation that they have had for years past, railways and telegraphs have been multiplied, and trade has for the past twelve months been kept within bounds, and legitimate consumption has been permitted to develop without being much interfered with by speculation. Should peace be preserved—and the extensive armaments going on may have that salutary effect—it is fair to presume we shall have the elements of prosperity alluded to at work for next year's spring season. In the mean time any values resting on a sound foundation, but till now unduly depressed, may have a chance to gradually improve, as has of late been the case in the metal markets of the world, especially so far as the leading one, Copper, is concerned. The statistical position of Copper is a highly favorable one. In February, last year, the English stock of Chili produce very nearly reached 25,000 tons, and has now run down to a little above 14,000, with a prospect of a still further reduction a month hence. To this important fact has to be added the equally strengthening circumstance that what there exists of it is well held by powerful parties, and is, so to say, removed from the ordinary fluctuations of the market, while dealers are indifferently well supplied, and withdraw what they hold. In Chili the smelters are debarred from making any further large contracts for ore, by the scarcity of hands and material. The consequence of this has been another improvement of 30/ in the London market for the week. Here, on the contrary, from local causes, we have slightly receded. We quote Chili Bars, deliverable at Havre, 220 francs; common ditto, 217·50; Ingots, 230; English Tough Cake, 227·50; and pure Corocoro Ore, 215. There is not much doing at Havre, where the market, meanwhile, follows in the wake of the English quotations; Lota and Urmenata there, 213 francs. Marseilles is also weaker on the basis of 220 francs for Refined Ingots. *Tin* in England has been active, the Australian arrivals being unusually large, but, being readily bought, a decline has been prevented; but any advance has thereby also been kept in check. The demand there has been for actual consumption. Holland has been quiet, a decline being avoided as long as holders show the firmness they have exhibited throughout October. In our own market Tin has experienced a slight recoil. We quote Banca, here or at Havre, 255 francs; Straits, 242·50; English, at Rouen or Havre, 242·50. Marseilles is but feebly sustained, Straits at 245 and Billiton at 240. *Lead* is firm in the European markets, especially in those of England and of our own country larger deliveries are effected with difficulty. Yet, so far as minor dealings are concerned, there has been, perhaps, less strength shown in the French markets, attributable, it is true, to merely local causes, having little or no bearing on the general course of the metal among us. Smelters in England have more commands on hand than they can conveniently fill at present, and the arrivals from Spain are too light to counteract the pressure for a supply. We quote at Paris, spot Lead, 58 to 58½ francs, and deliverable all the way to the end of the year, 59½. Old Lead, 52 to 53. There has been no improvement at Marseilles. *Spelter.*—The demand is good, both in England and France, and parcels on the spot are not easily procurable. The metal has been in brisk request here, and we are again higher; Silesian, at Havre, 61½ francs; other good brands, here or at Havre, 61. Marseilles remains steady. *Iron.*—Little can be reported about the French Iron market for the week; if anything, there has been a flagging tendency. At the North merchant Iron is held at 230 francs; in the Haute-Marne and the Meurthe and Moselle prices have kept between 235 and 240, not having much to fear from foreign competition. Sheet Iron commands 290 to 300, with some business. Special causes have brought about a rise in small Iron, Nails and Chains. Our society of civil engineers has vigorously taken in hand the question of direct Steel production, on the plan of the Ponsard system, and we shall soon be in possession of the facts and conclusions arrived at, which we shall not fail to make known in these columns. *Coal.*—Winter has come, and the parties who had been hesitating thus far have come forward. Stocks being ample, there has been no difficulty in meeting the sudden demand. Such being the case, no rise has taken place, and the apprehensions of consumers in this respect have subsided. The Northern Coal mines of France have produced 1,800,000 tons less Coal during the first half of 1874 than what there has been extracted during the same period of last year, in rely in order to prevent an undue accumulation of stock.

BELGIUM.

(*Le Commerce.*)

BRUSSELS, Oct. 31, 1874.—*Iron.*—Our government has at length taken the necessary steps for a distribution of awards for 6000 tons of Iron Rails to be furnished, so frequently referred to of late, the uniform price agreed upon being 205 francs per ton. The quantity seems a trifing one, and the price low, but while the dull times last neither the one nor the other are despised. A contract has been made by the Creuzot Company for 30,000 tons of Steel Rails to be furnished the Russian government. Adding thereto the 40,000 tons contracted by the same government within the past few weeks, it will be seen that the demand for Steel Rails, frequently treated of in these columns of late, is rapidly on the increase. English, German and French makers participate in these Russian deliveries. For the Silesian railroads 7000 tons Steel Rails will be needed; tenders will be opened Nov. 10. It will be seen that this steel rail question is being practically solved on an unexpectedly extensive scale, much sooner than we had any idea of, when beginning to agitate the question, and two of our large Iron establishments have resolved to make Steel Rails after the Bessemer process. The metal market is quiet, and prices are unaltered. *Coal.*—The market, though not in a flourishing condition, is far from being in a desperate one, as some trade papers would have us infer. Rates obtained are still remunerative, and Coal moves off without interruption.

GERMANY.

(*Borsenhalle.*)

HAMBURG, Oct. 30, 1874.—*Metals.*—*Copper.*—The German markets have done well during the week, but toward the close there is less firmness here and at Perlin. Here 16,000 quintals American Lake Copper have passed through the port in transit. We quote Drontheim and Swedish, 89; Minnesota, 110 marks. At Berlin, good brands of English and Australian are offering at 30½ to 31½ marks. *Tin.*—The position of the metal is ill defined in our country; while Berlin shows a considerable degree of strength; in our own midst, on the contrary, little transpires and weakness prevails. The quotation for Banca at Berlin is 34½ to 34¾ thalers; English, 32¾ to 33. Banca here may be quoted 106 marks. *Lead.*—The same firmness hitherto reported still remains the leading feature of the German markets, although for the want of a supply comparatively little transpires in our own. There is no change here; Berlin is 7⅛ to 7¼ thalers the 50 kilos for Tarnowitz, Hartz and Saxonian. Although Spelter remains firm generally, the dealings have been restricted; thus here but 1000 quintals changed hands at 23·60 marks. Nothing has been done at Berlin, where the quotation remains 7⅛ to 7¾ thalers. Kramsta and Silesian would have to be paid 7¼ at Breslau.

HOLLAND.

(*Evers & Co.*)

ROTTERDAM, Oct. 31, 1874.—*Tin* is quiet, nominal and without sales. The October deliveries have been: Of Banca, 13,655 slabs, against 21,369 in 1873; and since January 1, 113,185, against 116,688. Stock on warrants, 14,398, against 22,982. Unsold stock, 127,802, against 126,611. Afloat, 6000 piculs, against 5167. *Billiton.*—Jan. 1 to Oct. 31 deliveries, 2967, against 1831. Stock on warrants, 200 against 100; unsold stock, 2956. In private hands there remain 21,050, against 17,653 in '73.

EAST INDIES.

(*Gilfillan, Wood & Co.*)

SINGAPORE, Sept. 18, 1874.—*Tin* is in more demand, and the price has advanced to $25 per picul for Malacca. There have been moderate purchases for the United States. The Escort, for Boston, has cleared with 301 piculs Tin on board. The Pleiades, for New York, took 321 piculs. *Exchange.*—Firm at 4/2¾ to 4/2¾, credit bills.

(*Schmidt, Kusterman & Co.*)

PENANG, Sept. 21, 1874.—*Tin.*—The market opened with a good demand for China and India at prices ranging from $24·35 to $24 per picul for unsmelted. The bulk of business was done at the latter rate. Since the departure of the last mail a better demand for Europe set in, and fair purchases were made at $24·20 to $24·50 per picul for unsmelted. The market closes weaker at $24·30 per picul for unsmelted. Supplies have been moderate, and there is only a small quantity left unsold in the market. *Exchange.*—Unaltered at 4/2¾ to 4/2¾.

CHINA.

(*Arnhold, Karberg & Co.*)

CANTON, Sept. 25, 1874.—Stocks of *Lead* are very much reduced, and holders are exceedingly firm. *Tin* is declining. In *Quicksilver* a fair amount of business has been done at previous rates. We quote Lead from $7·40 to $7·65 per picul, Tin from $24·25 to $26·25, and Quicksilver from $197 to $198 for English, and $199 to $200 for California. *Exchange.*—From 5/9¼ to 5/9¾.

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(*From our Regular Correspondent.*)

SHEFFIELD, Eng., Nov. 2, 1874.

THE BANK RATE.

The Bank of England discount rate remains at four per cent. in spite of the considerable efflux of gold brought about by the fact that some of the foreign exchanges are considerably below our own. The French price is as low as 25·12—a point which offers many temptations for bar gold to be withdrawn from us and sent there. The directors of the bank, no doubt, rely upon the diminution of active circulation, which commonly begins to be noticeable about the second week in November. Sovereigns then begin to come in without any corresponding outflow, consequently if bullion be not taken out for export in too large quantities, matters may remain in a tolerably equable condition. If the foreign demand be in excess, the bank rate must of necessity go up, according to the traditional course marked out for observance in these and similar matters of monetary policy.

TRANS-ATLANTIC IRON.

Our London friend—not to say guide and philosopher—*Iron*, has a peculiar leader in its last issue under the above heading. I term the article peculiar, because I take it to be of the blow hot blow cold order of literary architecture. It savors too much of the "candid friend" style of composition, and is, on the whole, a mere piece of discursive special pleading in disparagement of the magnificent mineral resources of the United States. It has long since been played out to say that America can't compete with England—most people being content to admit the fact with some little qualification in the way of time—but *Iron*, for the first time, discovers that your immense coal deposits at Kanawha and elsewhere are too far away from your ore fields and iron works; consequently as soon as your charcoal supplies are exhausted many of your blast furnaces may be regarded as pretty considerably fixed. Says our sapient newspaper friend: "It would seem, indeed, that far from being endowed with a purchasable supply of coal or coke the American blast furnaces are in many cases compelled to fall back upon charcoal, and thus live over again the existence of our disused iron works in Sussex." I will not endeavor to reply to this—I will not pile up a heap of our rarest adjectives upon the writer's iron head, nor will I cull the choicest expletives afforded by our language in order to pelt him with them. I will simply say that I have always supposed many of the American iron masters made charcoal iron because there was a demand for it. Is not that the bare fact?

SCOTCH PIG IRON TRADE.

During the latter half of last week the Glasgow market stiffened somewhat, and there was a consequent slight increment in the prices of special brands of makers' iron. It is rumored that this rise is in part owing to a tendency toward speculation manifested by some of the brokers. Stocks are very low, there being now only 17,386 tons in Connall's stores. There are 119 furnaces in blast. Freights are not altered, New York being still fixed at 3/, both from Glasgow and Ardrossan. New Orleans is 10/; Baltimore, 17/6; Boston, 18/; and Philadelphia, 16/.

Writing on October 30th, Messrs. James Watson & Co., of Glasgow, says: Our market for Scotch pig iron has been firmer this week. Price of warrants was 81/9 and 82/ on Monday, from which point we have advanced to 84/6, at which we close to-day, sellers, buyers, 84/3, cash. Shipments last week were 10,324 tons, against 11,435 tons in the corresponding week of 1873.

	No. 1.	No. 3.
G. M. B., at Glasgow	90/	80/
Gartsherrie, "	105/	83/6
Coltness, "	105/	83/6
Summerlee, "	97/6	82/6
Langloan, "	102/6	83/6
Carnbroe, "	94/6	81/6
Calder, at Port Dundas	105/	82/6
Glengarnock, at Ardrossan	96/6	82/6
Eglinton, "	88/	80/
Dalmellington, "	89/	80/
Shotts, at Leith	102/6	82/6
Kinneil, at Bo'ness	93/6	78/

Messrs. Swan & Bros. prices current:

Glasgow Brands.	Furnaces B'wing, 119	Furnaces Out 38.	Furnaces Built, 157.	Prices. No. 1.	No. 3.	No. 4
Gartsherrie	12	4	16	105/	83/	..
Coltness	12	0	12	105/	83/	..
Summerlee	6	2	8	97/6	82/	..
Langloan	7	1	8	102/6	83/6	..
Govan	4	1	5	89/	80/	..
Calder	6	2	8	*105/	84/	..
Shotts { Bess'mer	6	1	7	100/	95/	..
Shotts { Ordinary				102/6	82/6	..
Carnbroe	4	2	6	94/	81/	..
Wishaw	2	1	3	..	..	..
Monkland	6	3	9	90/	80/	..
Chapelhall				..	..	..
Clyde	5	1	6	90/	80/	..
Quarter-Clyde	4	1	5	90/	80/	..

*f. o. b. Glasgow, 1/ per ton, extra.

Glasgow Warrants, 3-5, No. 1; 2-5, No. 3, g. m. b. 84/6.

WEST COAST BRANDS—*f. o. b. Ardrossan.*

	Brand'd	Eglat'n				
Glengarnock	7	2	9	96/	82/	81/
Ardeer	4	1	5			
Eglinton	6	2	8			
Lugar	4	0	4	87/	79/	85/
Muirkirk	3	0	3			
Portland	3	3	6			
Dalmellington	6	2	8	89/	79/	75/

EAST COAST BRANDS—*f. o. b. in the Forth.*

Kinneil	3	1	4	95/	78/	72/6
Almond	2	1	3	92/6	80/	..
Carron { Selct'd	5	1	6	100/	..	..
Carron { Ordn'y				90/	..	..
Lochgelly	2	2	4	90/	83/6	..
Lumphinnans	0	2	2	..	77/6	70/
Bridgeness	0	2	2	..	..	..

Messrs. Wm. Colvin & Co., Glasgow, 31 November, say: The warrant market, which we reported this day last week as steady at 83/, gradually improved toward the end of the week, closing firmly on Friday at 84/3. This week business has been done from 84/6 to 85/, closing this afternoon with buyers at 84/6, and sellers at 84/9. There is a quiet and steady demand for makers' iron, with little change to report in prices.

	Deliverable alongside. No. 1.	No. 3.
G. M. B., at Glasgow	89/	80/
Gartsherrie, "	105/	83/6
Coltness, "	105/	83/6
Summerlee, "	98/6	82/
Carnbroe, "	94/	81/
Monkland, "	89/	80/
Clyde, "	90/	81/
Govan, at Broomielaw	89/	80/
Langloan, at Port Dundas	102/6	83/
Calder, "	105/	83/
Glengarnock, at Ardrossan	96/	82/6
Eglinton, "	86/	79/6
Dalmellington, "	89/	79/6
Carron, at Grangemouth, selected	100/	....
Shotts, at Leith	102/6	82/6
Kinneil, at Bo'ness	95/	77/6
Bar Iron	£10	
Nail Rods	10	

SHIPMENTS.

	Tons
Week ending 31th October, 1874	14,056
" " 1st November, 1873	12,838
Increase	1,218
Total decrease since 25th December, 1873	153,634

SHIPMENTS OF PIG IRON.

The following figures show the weekly shipments of pig iron during 1872, 1873 and 1874:

Week ending.	1874. Tons.	1873. Tons.	1872. Tons.
Jan. 3	4,214	5,701	7,311
10	6,548	11,088	10,016
17	7,236	9,386	8,887
24	6,532	11,055	12,070
31	5,635	8,670	10,208
Feb. 7	7,303	10,537	13,200
14	7,138	8,050	12,078
21	9,256	12,312	14,388
28	10,580	12,144	16,951
Mar. 7	8,664	12,494	17,832
14	10,622	14,756	19,596
21	6,857	12,039	16,440
28	10,601	11,161	21,729
April 4	10,238	15,276	16,343
11	9,655	20,150	28,531
18	8,931	16,128	25,026
25	8,771	12,996	23,117
May 2	11,202	9,102	26,866
9	7,372	14,090	25,378
16	6,465	17,493	23,560
23	6,705	17,173	18,808
30	7,016	16,880	22,180
June 6	5,460	14,309	20,133
13	5,483	13,127	21,530
20	5,475	12,287	19,904
27	6,415	12,107	16,599
July 4	6,112	11,680	19,221
11	9,352	11,230	20,254
18	9,944	9,865	17,108
25	8,483	11,085	20,561
Aug. 1	11,153	10,187	14,494
8	7,646	8,066	17,341
15	9,488	10,717	15,532
22	7,618	10,018	14,314
29	8,751	12,309	17,436
Sept. 5	9,488	10,629	15,709
12	11,497	11,477	14,129
19	14,226	8,354	14,018
26	11,359	12,073	13,707
Oct. 3	11,562	11,205	12,070
10	10,307	15,492	12,251
17	10,140	12,689	12,368
24	10,324	11,435	13,916
Total	368,825	518,773	733,205

THE CLEVELAND DISTRICT.

The shipbuilding trades of the Tees, Tyne and Wear are so unprofitable at present that the men have received the following notice: "In consequence of the greatly depressed state of trade, we find it necessary to hereby give notice that a reduction will take place, at three months from this date, of 15 per cent. in piece work prices, and 10 per cent. in time rates, for all classes of skilled workmen and their assistants." About 8000 workmen are affected. They are those employed by Messrs. Palmer & Co. (Limited), Jarrow; Messrs. Leslie & Co., Hebburn; Messrs. Schlesinger, Davis & Co., Wallsend; Messrs. C. Mitchell & Co., Walker; Messrs. J. Wigham, Richardson & Co., Walker; Mr. Redhead; Messrs. Cole Brothers, and other firms on the Tyne. The finished iron and rail trades of the district are also growing duller.

JARROW ON-TYNE.

A correspondent cites this town as an instance of the amazing growth of some of the towns brought into existence by the iron trade. He says: "The ancient village of Jarrow has become a great commercial town, and been incorporated. In 1851 the great iron works of the Messrs. Palmer were commenced with about 150 workmen. During the period named the engine works, graving docks, blast furnaces and rolling mills have been built, and there are now employed in the shipbuilding yards and other works from 5000 to 7000 men, who are in receipt of excellent wages. Of finished iron there had been produced as much as 40,000 tons per annum; and, during the last eight years 117 engines, of 17,357 horse-power, have been completed. Here the most powerful iron ships that traverse the seas, in many parts of the world, have been constructed, and are now being navigated. The rateable value of the new borough in 1851 was £4135, and now it is £55,489."

TRADES OF SHEFFIELD.

In the cast steel trade, which is one of the principal industries of this district, there is not a great amount doing, particularly in common kinds of steel. Of late Bessemer steel has been largely made use of for certain purposes in substitution for the lower grades of cast steel previously in use; hence the result above alluded to—a result which has been made more marked and distinctive by the successes of German, French and United States manufacturers in the same department. Best tool, sheet and crucible steels are, nevertheless, in fairly good request, as well as certain special brands for which several Sheffield houses have obtained a reputation which is for the present out of the reach of competition.

There is very little change in the price of, or demand for, hematite ores. If anything, prices are a trifle easier, consequent upon the dullness which characterizes several establishments engaged in the Bessemer steel and steel rail trades. There are fairly good sales of British hematites for blast furnace purposes, but speaking of this department as a whole, it can not be said to be very active just at present.

The ordinary and Bessemer hematite pigs produced in the Cumberland district do not vary very greatly in price—a further natural consequence of the not very active inquiry for Bessemer material. I notice that Millom "Bessemer" No. 1 is fixed at 95/; No. 2 at 92/6; and No. 3 at 90/; with "ordinary" hematite, No. 3 at 90/; No. 4, 87/6; No. 5, 87/6; mottled, 105/; and white, 105/, on the customary four months' terms and discount for cash. Maryport "hematite" Nos. 1, 2 and 3 are 95/; No. 4, 90/; No. 5 M. and W., 90/. "Bessemer" No. 1, 100/; No. 2, 97/6; and No. 3, 95/ per ton at the works for lots of ordinary bulk.

Other ordinary descriptions of North country pig iron are somewhat lower in price, in sympathy with the considerable drop which has taken place in makers' brands of Scotch pig iron within the past fortnight. Most of the pig iron produced by the Sheffield, South Yorkshire and Derbyshire blast furnaces is used up at the works where it is made; hence no reliable indication can be given of the price of local pig. At Sheepbridge, Staveley, Parkgate and elsewhere the furnaces appear to be kept in a state of moderate activity.

In recognition of his approbation of the manner in which Messrs. John Brown & Company (limited), Sheffield, have constructed the iron-clad fortification works at Waxholm, near Stockholm, his majesty the King of Sweden has presented Mr. J. D. Ellis, managing director of that company, with the knighthood of the Order of Wasa. These fortifications are similarly constructed to those of the English War Department, both being made of the very wide armor plates rolled on Mr. Ellis' patent system. The firm in question are now and have been for some time past busy in armor plate forges, mills, and planing, &c., shops. There is very little competition in the production of the large sized armor plates, casements and fort shields, Messrs. Charles Cammell & Company, Sheffield, being the only other firm having machinery and appliances for rolling them. The latter firm not long ago, had some very massive bending presses fitted in their Cyclops Works.

A few weeks back I recorded the fact that the directors of the Phœnix Bessemer Steel Company, Limited, near Rotherham, had recommended that the shareholders should sanction the increase of the company's capital by £50,000; they made the recommendation on the strength of the facts that the capacity of the works and the demand for their productions had got beyond the power of the capital. They therefore believed that the addition of £50,000 would not only prove remunerative *per se*, but would be the means of increasing the profits derived from the previous expenditure. At the shareholders' meeting, held about a fortnight back, this recommendation was agreed to, and a considerable amount was subscribed there and then. It is now stated that the whole sum has been forthcoming, £20,000 having been raised by debentures, and £30,000 by mortgages on the works and plant.

On Monday morning a vertical boiler exploded at the foundry of Messrs. Wm. Oliver & Company, Chesterfield, injuring one man somewhat severely. No cause for the explosion has yet been stated.

On Monday afternoon an important conference was held at Leeds between the colliery proprietors and miners' representatives of the West Yorkshire district, in order to take into further consideration the question of arbitration upon the notice given by the owners of a reduction in wages of 10 per cent. The matter occupied several hours in discussion. The owners under the chairmanship of Mr. Robert Tennant, M. P., offering to refer the matter to arbitration, but without doing so on the basis of a permanent sliding scale as suggested by the miners. It was ultimately decided to adjourn the meeting for a week.

In South Yorkshire and Derbyshire the coal trade is brisk, so far as house coal is in question, but engine fuel and pit slack are in very dull request at prices which are as low as 2/6 to 6/ per ton for the latter at the pit banks.

Cutlery is in a little better request here as Christmas draws nearer, but the demand is still anything but brisk for common goods.

The following paragraph is an excerpt from the annual report of the Albion Steel and Wire Company, Sheffield—a concern which has lost £59,000 in two years' trading:

"Having been in considerable ignorance and doubt with regard to the American business and accounts, we thought desirable that the secretary of the company should undertake a journey to New York for the purpose of making such investigations in these matters as might seem to him necessary, and also to make such observations in the company's behalf as his hurried visit would permit. The report and accounts which he has presented to us as the result of such visit are most full and complete, and only by means of these have we been enabled to make the balance sheet perfect. Our trade with America has been somewhat limited by the depression which there prevails, but the past presents sufficient inducement for the cultivation of a larger trade than has hitherto been done, and there is hope that this may be accomplished."

BIRMINGHAM AND STAFFORDSHIRE.

The hardware trades of the metropolis of those branches of industry are still as actively engaged as when I last alluded to them in detail, and I do not need, therefore, to go into the question at any length now. At this season of the year there is almost invariably a good inquiry for hardwares. In addition to the reductions in prices recorded in my last letter, I may state that curry combs are down 2½ per cent., tower and barrel bolts, of all sizes and qualities, are lowered an extra 2½ per cent., making the full reduction on these goods about 10 per cent. net. In other respects I do not, at present, hear of any change. Japan is in the market for large consignments of rifles, with the probable intention of disputing matters with "that Heathen Chinee." The iron trade of Staffordshire is moderately good, although buyers continue to hold back all the orders they can in anticipation of a further fall in prices very shortly. There is a good export inquiry for galvanized roofing sheets, and a fairly steady home demand for sheets at £13 to £14, and hoops at £10. 10/ to £12. Marked bars are nominally £11 per ton, but many sales are being effected at £10. 5/ to £10. 10/. In common sheets and bars there is great competition, and a consequent abundance of underselling tactics.

THE SOUTH WALES DISTRICT.

There is very great activity in the export coal trade of this district, the shipments from Cardiff having been very large of late. Many of the pits in Mommouthshire and Glamorganshire seem to be trying to rivel each other in the daily output. Prices at present keep up very well, but there is some likelihood of a drop in the face of the existing enormous output. The iron trade is not generally very good. Last week a good cargo of steel rails was shipped from the Landore Works to Bilbao, and a quantity was sent to France from Aberdare. Up to now there is no very clear indication of the course to be taken by the ironworkers as to the wages drop, but if they resist it several of the great establishments will be closed. Rails (iron) are now quoted at £7 to £7. 10/, and steel at the low price of £8. 10.

THE METAL MARKETS.

The following merchants, &c., reports afford a good idea of the state of the metal markets during the week just ended:

Von Dadelszen & North's report: "*Copper.*—The price of Chili has improved from 20/ to 30/ per ton since our last issue, and transactions reported amount to about 1100 tons; g. o. b., from £81. 10/ to £83, cash, and two months fixed; named brands from 10/ to 40/ extra. A cargo of ores and regulus fetched 16/1½ and 16/7½ respectively. Australian, little done. Wallaroo, from £91 to £91. 10/. A little Burra reported at £90, but no further sellers now. English steady, at late rates. Yellow metal advanced ¼d. to 8¼d. *Tin* steady. In Straits a fair business has been done at 91. 10/ to £92. 10/, spot, and £90. 10/ to £91. 10 to arrive. There has been a large demand for Australian, but it was freely met at £90 to £90. 10/ on the spot, and £90 to arrive. Banca nominally £100 here; in Holland, quiet, at 57 fl.; Billiton, 54½ fl. to 55 fl. English quiet. Common ingots about £97; bars, £98. *Tin Plates* unchanged. *Lead* is rather easier, but scarce for early delivery, at £23 for good soft English pig. *Spelter.*—No sales of Silesian reported. Importers are asking £24 for ordinary brands. *Antimony* dearer; £50 asked. *Quicksilver*, £24."

Messrs. French & Smith say: "*Copper* has recovered during the last few days what it lost a week since, and is now £83 for Chili bars, with a fair business. *Tin.*—The demand for consumption continues very good, and as there is some disposition to deal in the article for speculation, we may see some improvement in prices. A large business has been done in Straits for forward delivery at £91 to £91. 10/; and on spot Australian has been delt in at £90 to £90. 10/. There are now buyers at the latter quotation. Straits, £92. 10/; English firm. *Tin Plates* steady. *Lead* very firm and scarce. *Quicksilver* firm at £24."

Messrs. Vivian, Bond & Watson say: "*Copper.* Values of all descriptions of copper again show an increase since 1st instant. Early in the month a large business was done, and g. o. b's were sold as high as £85, cash, but the fear of dear money, and the interruption in the cables from Chili, through the breaking of the wire between Monte Video and Valparaiso, frightened buyers, and sales of g. o. b.'s from second hands were made as low as £81. 10/, cash. The cable from Panama, in advance of the mail leaving Valparaiso 2d instant, reached here 23d instant, advising charters for second half September, 2100 tons fine, or 3100 for the month. Since this there has been an improved demand, and g. o. b.'s have again brought £83, cash, at which we close firm with little offering, importers for the most part having quitted their stocks. *Tin.*—A good business has been steadily going on in foreign and English; prices all

round are somewhat higher than our last quotations."

Messrs. Warner, Walduck & Co.'s prices current: "Railway chairs, £4. 15/. General castings from £5. 15/ (at works). *Bar Iron.*—Staffordshire "Champion" bars, £10. 10/; hoops, £11; sheets, £13; strip, £10; charcoal bars, £21; hoops, £22; sheets, £24; strip, £24 per ton (at works). North of England bars, £9. Tank plates, £11 (at works). Bolts and nuts from £17. 10/ per ton. Spikes and rivets from £12. 15/ per ton in London. *Tin Plates.*—"Hendy" charcoal, extra fine quality, 38/ per box; "Gower" charcoal, 35/; "Rhos" coke, 30/6 per box; common coke plates from 27/ per box, in London. Rolled brass, 9¾d. per lb.; brass tubes, 12d. per lb.; copper tubes, 12¾d. per lb.; brass wire, 9½d. per lb.; copper wire, 12d. per lb.; telegraph wire, 12½d. per lb."

The Liverpool circular of J. Pitcairn, Campbell & Co., says: "The market has been steady throughout the fortnight but without animation, and we close with our quotations unchanged. They are £83 to 85. 10/ for Chili bars; 16/1½ for ore; 16/9 for Regulus; 18/3 for Barilla. Business transacted during the fortnight comprises about 2300 tons bars at £81. 10/ to £83 for good ordinary brands, and 100 tons selected brands at £83. 10/ to £85. 10/ per ton; 236 tons ore at Swansea sold at 16/1½, and 472 tons Regulus at 16/7½ per unit. At the Swansea ticketing on the 20th inst., 1747 tons ore average produce, 14⅝d. per cent. realized 15/. 10/ per unit. *Tin.*—Market firm at £92. to £92. 10/ for Straits, and £73 to £71 per ton for Peruvian. *Lead.*—Market firm at £23, for ordinary shipping brands. *Spelter.*—Market steady at £23 to £23. 10/ for Silesian brands."

Mr. James Hallow's metal circular (Liverpool, Nov. 2) says: "*Copper.*—An average inquiry for tough, but manufactured is somewhat neglected. Chili has further improved in price, and a considerable quantity has changed hands; the market closes firm at £83 to £83. 10/ per ton for g. o. b. There is a continued reduction in stocks, which arises to some extent from the discontinuance of the weekly arrival per steamer, as a portion of the shipments of bars is coming by sailing vessels, which have not arrived. Ores and Regulus: sales at 16/ to 16/3 for ores, and 16/6 to 16/9 for Regulus. This week a cargo at Swansea, consisting of 235 tons ore, sold at 16/1½, and 470 tons Regulus at 16/7½. *Tin*, steady and more inquiry. English, £97 to £98; Straits, in London, £92. 10/ to £93; Peruvian, £70 to £82 per ton."

LATEST LIVERPOOL PRICES.

Iron: f. o. b. in Liverpool, per ton.

	£	s.	d.	£	s.	d.
Merchant bar	9	5	6 to	9	10	0
Merchant bar, in Wales	8	15	0 to	9	0	0
Staffordshire	10	0	0 to	12	0	0
Hoop	11	10	0 to	12	10	0
Sheet	13	0	0 to	14	0	0
Nail rod	10	5	0 to	10	15	0
Bar, best crown	10	0	0 to	10	10	0
Boiler plates	12	5	0 to	13	5	0

Tin Plates: f. o. b. in Liverpool, per box.

	£	s.	d.	£	s.	d.
Charcoal, I. C.	1	16	0 to	1	19	0
Coke, I. C.	1	7	6 to	1	10	0

Copper: Delivered in Liverpool, per ton.

Bolt and Sheathing	£96
Tile	90
Tough cake	88
Best selected	90

LATEST LONDON METAL MARKET.

Copper again dearer. Chili on early change, £85. 10/, £86 cash; Wallaroo, £94, closing at best; about 500 tons Chili done. Regulus, 17/. *Tin.*—Small parcel Straits, £93. 10/ spot, £92. 10/ to arrive; Australian, same price spot. *Spelter* and *Lead*, unaltered.

On the Value of Colorado Coals in Metallurgy.

BY W. WEST.

In view of the great and rapid development which will take place in our mining industry, and consequent necessity for the treatment of the minerals as they are produced, the fuel question is a most vital one to Colorado. Not that there is any doubt as to quantity, or eventually as to quality, but its constitution and physical character are so different from any in general use in metallurgy, that new forms of construction in furnaces, and new modes of applications to secure a perfect combustion and the temperature required will be necessary. The subject has hitherto remained in the hands of theorists, and in no case have the experiments been of magnitude and duration. We may safely add that in no place but the Golden Works have there been any trials of the lignites on a working scale. The work there was varied and continued so long as to be interesting to others who may hereafter try to use the fuel for like purposes. Every experiment is of interest and value as a test of method and as settling questions of theory. Much can be anticipated from the knowledge of the constituents as shown by the analysis, but it is only by testing in the furnace that any definite conclusions can be drawn. This analysis should be made upon coal as delivered at the furnace. The amount of water contained in any fuel used in works of this kind is the most important consideration, and the samples furnished to experts in distant cities are no guides to what the consumer will receive by the ton at the works. Such samples are always the best that can be found, and often months out of the mine, and dried so much before they reach the assay as to often show mere traces of moisture they did contain when first raised. The following are approximate analyses of the coals from the various banks as they are delivered by the miner, and shows the amount of water which finds its way to the fire box.

Erie coal, three days from the mine:

Water	22·00
Volatile matter	26·00
Carbon	44·00
Ash	8·00

Murphey's coal, three days from the mine:

Water	22·50
Volatile matter	29·00
Carbon	43·75
Ash	4·75

Golden coal, two days from the mine:

Water	19·00
Volatile matter	30·00
Carbon	47·00
Ash	4·00

It will at once be seen that the amount of uncombined water is much larger than usually given, and how much it will interfere with the working of a furnace.

When it was decided to build works at Golden for the smelting of Colorado ores, a furnace was built at the foundry in Golden for the purpose of experimenting with the coal, and for three months I gave my attention to the matter. I came to the conclusion that sufficient heat could be obtained for the purpose of desulphurizing, and no more. The works were built and also one furnace of very large size for calcining. When the works were started I soon found that some of my calculations for obtaining temperature were erroneous. Only heat enough to extend half way along the furnace, and this not sufficient to expel the sulphur, could be obtained. This was with Golden coal. I then tried the Marshall coal, with much better results, but still far from satisfactory, the grates not allowing for a perfect combustion. The back of the fire box remained full of unburnt fine coal, while the combustion was only on the surface and near the grates.

I then determined to try a gas furnace, so as to have a slow combustion, with the formation of carbonic oxide, and by having tubes up the walls and around the fire boxes to drive in heated air at the bridge. This was a considerable improvement as far as heat was concerned, but here other difficulties presented themselves, arising from the behavior of the coal under the action of the blast. All these coals decrepitate under the action of a forced blast as bad as chloride of sodium, and soon fill the furnace with a mass of dust coal; the blast then can only go through at the weaker places and passes up small chimney passages instead of equally through the whole mass, generally passing between the coal and walls of the furnace, doing injury to the walls to such an extent that this furnace was discarded in consequence of the frequency and cost of repairs.

This property of coal to break into small fragments is the main difficulty to contend with. We have found this to stop the draft of air through the mass in all the forms of furnaces used thus far, but in the gas furnace the consumption was far beyond any other form to produce the same results.

I then determined to try a fire box again of ordinary construction, with bars so near together as to prevent, as far as possible, the fine coal from falling through, and use a blast to force air through them and the coal, thereby securing a more equal distribution of the air and prevent waste of coal. This was the most successful of any experiment tried, and the large furnace has been doing satisfactory work.

The quantity of moisture contained in most of the coals, in fact, in all, prevents them from being used in the best form for smelting in reverberatories, and necessitates a still further improvement in its application so as to obtain the highest temperature necessary for the operation in such furnaces. To do this I dried the coal by exposure to heated air in kilns over flues, and then ground it fine. A machine was constructed in which the quantity of both air and coal could be regulated, and then blew in the fine dust. The results obtained showed that every operation that can be performed in such furnaces with any fuel can be performed in them by the use of this, also that the cost of grinding is not half the value of the coal saved, and the most inferior kinds, and even wastes from the coal works, can be used, by this method, if not too dirty.—*Georgetown Review.*

The Management of Coke Ovens at Blast Furnaces.

The following abstract of a paper by Mr. W. Buher, relating especially to the coke industry in the Siegen district, will be read with interest:

The most important advantage connected with making coke at the furnace lies in the ability to produce a pure material, of reliable and uniform quality. The blast furnaces will then be in a position to protect themselves in case of a rise of coal. During the last rise the furnaces of the Siegen district were furnished with very dirty, impure, and imperfectly burned coke, though they were compelled to pay a much higher price than that due to the rise in coal. An additional advantage is enjoyed in always being able to work with better fuel than if the coke were bought. In general the furnaces will make as good a coke as they can, the coke merchant, on the contrary, as good a coke as he must. With good fuel furnaces can produce better pig iron, and this is of great weight to the Siegen district, where very pure ores are smelted with middling if not actually with bad coke.

I confess, however, that the following facts might, under certain circumstances, be regarded as offsets to the above advantages. (1) The coke may be used immediately after being drawn, in which case it would be very wet outside while yet glowing inside. This can easily be prevented by allowing the coke to cool at least six hours before using it. (2) It is less difficult, when cars are scarce, to maintain a sufficient supply of coke than to maintain a supply of coal, for the former is scarcely liable to change, while the latter rapidly loses value on exposure, and even becomes almost unfit for use in coking after lying five to six weeks. On the whole, however, the advantages of making coke at the furnace considerably outweigh the disadvantages, and on financial grounds the location of the coke ovens near the furnace is advisable.

In my opinion there is great and unqualified advantage in combining a coal washery with every coke works. Coke made direct from coal out of the mine is very bad; that made out of screened coal is better, but yet far from being satisfactory. Further, it is scarcely possible to get ten tons of screened coal on a long car without losing a good deal by dropping off on the way. Even the advantage from the percentage of slate washed out of unscreened coal does not compensate this loss. The coke works at the Germania furnaces produced, on an average, 66 per cent. of coke out of screened coal, but after bringing the washery into operation on unscreened coal, they produced 70 per cent., notwithstanding the loss of weight caused by washing out the slate.

The washing apparatus used at the Germania works was erected by the Humboldt Company, and the process to which the coal is subjected in it is as follows: The coal is raised, in small iron cars, up to the top of the building. The cars are then emptied on to a screen with openings 2¾ inches square. The lump coal falls down over the screen and may be loaded direct into other cars. If this is not desired, it may be broken on the screen itself. The coal that passes through goes first into a pair of coarse rollers, set about 2 inches apart. Thence it is lifted by an endless belt into a rotary screen that separates the lumps into four sizes, the smallest of which is ¼ of an inch in diameter. This size goes direct to the fine rollers, and is not washed. This can be done with most of the Westphalian coals, since the fine coal contains very little impurity of any kind. The next two sizes, respectively ½ inch and 1 inch in diameter, fall into the washing machine or jigger, while the coarsest lumps go back to the first set of rolls. The coal from the washing machine is dried, passed through a set of rolls set close together, and is then lifted on an endless belt into bins for the coke oven charging cars.

In a coke works of any size it would be advisable to separate the fine coal before crushing in the rollers. Some coke burners prefer a disintegrator to the set of fine rolls, but not wisely, as there is little to recommend the former. The washery requires scarcely any attendance, and costs little for labor, since one hand can take charge of all the washing machines usually used.

Mr. Atkins, of Birmingham, England, has invented a process which admits of the filling of articles of brass with molten iron. The balance weights of chandeliers, pillars, columns and imperial weights may be made, advantage being taken of this process, at a much diminished cost. It is simply necessary to immerse the brass shells in water, and the molten iron is poured in. The shell cannot, of course, attain a higher temperature than 212°, the boiling point of water, while the temperature of its contents may be about 3000°. In making imperial weights the shells are imbedded in iron fillings, the high conducting power of which is thus turned to account. The process, simple though it be, is, from a commercial point of view, one of very great importance, as will be readily understood.

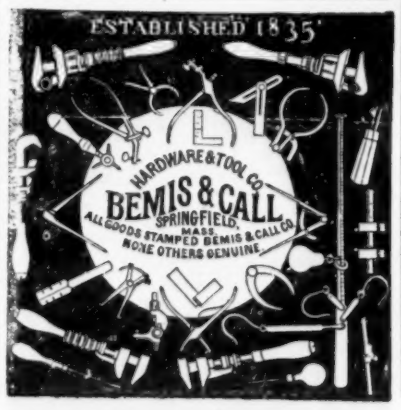
They are building railway cars in Troy, N. Y., for the Australian market. They are to be used on the Hobson Bay R. R. These cars, it is said, are sent out at the very low rate of $8 per ton, whereas formerly as high as $40 per ton has been paid to Chili and Peru. Prospects for American enterprise in Australia are full of hope. The report of the Australian Chief Engineer, who visited the United States by direction of the government, was highly favorable, and propositions to send considerable orders for cars, engines and bridges are under consideration.

London Metal Market.

(*From The Mining Journal.*)

	£.	s.	d.	£.	s.	d.
Copper—₱ ton.						
Best Selected	92	0	0		—	
Tough Cake & Tile	90	0	0		—	
Sheathing and Sheets	94	0	0	96	0	0
Bolts	97	0	0		—	
Bottoms	97	0	0		—	
Old	85	0	0		—	
Australian	90	0	0	92	0	0
Wire ₱ lb.	0	1	0		—	
Tubes "	0	1	1	0	1	2
Brass—₱ lb.						
Sheets	0	0	9	0	0	9½
Wire	0	0	9	0	0	9⅝
Tubes	0	0	11	0	0	12
Yellow Metal Sheathing	0	0	8	0	0	8¾
Sheets	0	0	8			
Spelter—₱ ton.						
Foreign on the spot	23	5	0	23	10	0
" to arrive	23	2	6		—	
Zinc—₱ ton.						
In Sheets	31	0	0	31	0	0
Quicksilver—₱ bottle	34	0	0		—	
Tin—₱ ton.						
English Blocks	97	0	0	98	0	0
Ditto Bars (in bris.)	98	0	0	99	0	0
Ditto Refined	98	0	0		—	
Banca	97	0	0	98	0	0
Straits	92	0	0	92	10	0
Australian	90	0	0	91		
***Tin Plates**—† ₱ box.						
IC Charcoal.....1 qual.	1	16	0		—	
IX " .....1 qual.	2	0	0		—	
IC " .....2 qual.	1	15	0		—	
IX " .....2 qual.	2	1	0		—	
IC Coke	1	7	0	1	9	0
IX "	1	13	0	1	15	0
Canada Plates ₱ ton.	19	0	0		—	
" at works	18	10	0		—	
Iron—₱ ton.						
Bars Welsh, in London	9	5	0			0
" to arrive	9	0	0			
Nail Rods	10	5	0	11		0
Nail Rods, Staff'd in L'ndon	11	0	0	12	—	
Bars	12	0	0	0	0	0
Hoops	10	0	0	11	0	0
Bars at Works	11	0	0	12	0	0
Hoops ditto	11	0	0	12	0	0
Sheets, single, and plates	12	15	0	14	0	0
Pig, No. 1, in Wales	5	0	0	6	10	0
Refined metal ditto	7	0	0	8	0	0
Bars, common ditto	8	5	0	8	10	0
Do, merchant, Tyne or Tees	8	10	0		—	
Ditto, Railway, in Wales	7	0	0	7	5	0
Ditto, Swedish, in London	16	0	0	17	0	0
To arrive	17	5	0			0
Pig, No. 1, in Clyde	4	7	0	5	12	6
Ditto, f.o.b., Tyne or Tees	4		0	4	5	0
Ditto, Nos. 3, 4, f.o.b.	3	10	0	4		0
Railway Chairs	5	0	0	5	5	0
" Spikes	12	10	0	14	0	0
Indian Ch'coal Pigs in L'don	8	0	0	10	0	0
Steel—₱ ton.						
Swedish, in kegs (rolled)		—			—	
Ditto (hammered)	19		0	20	0	
Ditto, in faggots	20	10	0		—	
English, spring	19	0	0	24	0	0
Lead—₱ ton						
English Pig, common	22	15	0	23	—	
Ditto, LB	23	0	0			
Ditto, WB	24		0			
Ditto, Sheet	24		0	24	10	0
Ditto, Red Lead	24	0	0	24	5	0
Ditto, White	30	0	0	32	0	0
Ditto, Patent Shot	26	10	0	26	15	0
Spanish	22	12	6	22	17	6

* At the works, 1s. to 1s. 6d. per ton less. Terne plates 2s. per box below tin plates of similar brands.
† Add 6s. for each X.



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STEEL & IRON SQUARES,

STEEL AND IRON RULES.

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SOLE AGENTS,

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MANUFACTURERS' AGENTS,

And Dealers in American and Foreign

Hardware,

81 Beekman Street, New York.

SKATES.

Remnant of stock of The Eagle Auger and Skate Manufacturing Co.

Style "T."

Style "U."

Of the above styles we have on hand the following sizes:

Length of wood.	10	11 in.	Length of wood.	9½	10	11 in.
of "T" Nos.	6	8	"U" Nos.	5	6	8

We have also on hand other styles which, with the above, will be sold *very low* to close them out. Price list sent on application.

SOLE AGENTS FOR

The Snell Mfg. Co.'s Boring Machines and Boring Implements.
J. P. Hommedieu's Ship Augers and Ship Auger Bits.
Wm. A. Clark's Expansion Bits.
Ten Eyck Mfg. Co.'s Axes, Hatchets, &c
Robert Mann & Co.'s Chopping Axes.
Middleboro' Shovel Co.'s Shovels, Spades & Scoops.
Merrill's Chisels and Drawing Knives.
American Shear Co.'s C. S. Shears, &c.
United States Steel Shear Co.'s Scissors, &c.
Miller Bros. Cutlery Co.'s Pocket Cutlery.
Woods Cutlery Co.'s Table Cutlery, &c.
Turner & Cowlishaw's Celebrated Amer. Razors
Davis Level and Tool Co.'s Plumbs & Levels, &c.
Taylor Mfg. Co.'s Door Bells, &c.
Nashua Lock Co.'s Locks, Knobs, &c.
Mrs. Coles' Fluting Machines.
W. H. Hocken-smith's "Eureka" Can Opener.
H. A. & A. H. Warner's Base Knobs.
C. G. Beebe's Cotton Lines.
H. Clark's Brad Awl and Tool Sets, &c.
McKnight & Kohrer's Axe, Pick, Sledge and Small Handles.

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THE ONLY UPRIGHT STEAM RADIATOR MADE WHICH HAS A POSITIVE CIRCULATION.
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Easily Applied and not Liable to get out of Order."—From Report of Judges at American Institute Fair, 1873.

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In Appearance the Most Beautiful. In Action the Most Graceful. In Use the Most Reliable.

The Challenge Springs are manufactured from **Steel Wire, tempered by an Improved Process**, the result of repeated experiments, and must not be classed by dealers with the numerous worthless "Coil Springs" made from common Bed Spring Wire.

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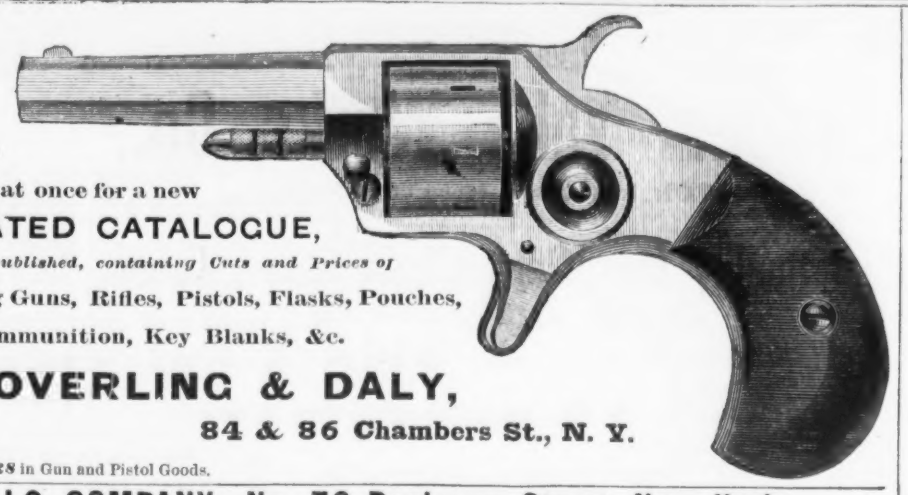
VERMONT MFG. CO., Hay, Manure and Shovel Handles. All kinds of Ash, and Hickory Timber Sawed and Turned to order.
S. A. MILLARD & CO., Scythes, Forks, Hoes and Rakes.
WESTERN STONE CO., Hindostan and Sand Stone.

LITTLE JOKER.

The Best
Cheap Pistol Made.



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This Brace has a **Lignum-vitæ Head, Rosedle, Wrought Iron Nut & Socket,** with **Lignum-wood Revolving Horn-Sweep, Malleable Iron Rachet Wheel.**

Cast Steel Jaws,

It is beautifully finished, and in **MOST PERFECT BRACE**

In places where there is not room to revolve the sweep, a will drive the bit in or out. They cost only 50 cents more without the Ratchet attachment, and will surely come **IN MARKET.**

Miller's Falls Co.,

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NEW YORK.

All respects the slight back and forth motion than the same style of brace into general use.

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IRON CUTTERS.

This is the most powerful Cutter in use, and just what is needed by all retail iron dealers. Also by shipbuilders, manufacturers, and all others having iron to cut. It will cut iron twice as large as any other machine of the same cost.

Weight.	Cuts.	Price.
No. 1, 16 lbs.,	⅜x2 in., or ½ in. round or sq.	$25
No. 2, 165 lbs.,	½x3 in., or ¾ in. " "	50
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GLASS CUTTERS.

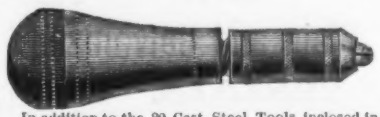
WITH THIS BRACKET SAW

An infinite number of useful and ornamental articles can be made. It will pay for itself every day when in use. The frame is 5x12 in., and made of red cherry wood, beautifully polished.

For sale at all Hardware stores.

Millers Falls Co.,

B



In addition to the 20 Cast Steel Tools inclosed in this handle, it will hold anything from an 8 inch Mill File to a Cambric Needle. It is by far the best Tool Holder in use, and will also answer nearly all the purposes of a Hand Vise. The wood is lignumvitæ and hard maple, the ferrule, malleable iron, and the jaws cast steel. Most hardware dealers keep them, or will send to us for them.

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Manufacture **Barber's Bit Braces, Miller's Falls Vises, Little Giant Iron Cutters, Adjustable Chuck Breast Drills, Family Tool Chests, Pratt's Boiler Tube Scrapers, Patent Angular and Ratchet Drilling Machines, Langdon Mitre Boxes.**

Our Glass Cutters are made with a handle like a Glaziers Diamond, but, instead of the diamond point, they have a small hardened steel revolving wheel, the sharp edge of which cuts nearly as well as a diamond. They are durable, and will give entire satisfaction.

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These **Vises** are only manufactured at the **HOWARD IRON WORKS,** at **Buffalo, N. Y.** and are so stamped. The improvements in these **Vises** which are patented are valuable, and parties who claim to manufacture, and are offering a **Vise** representing it to be the same as the **HOWARD VISE,** are deceiving the Trade.

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The New Double Screw Parallel "Leg" Vise.

We are now ready to furnish, as the result of more than thirty years' experience, our latest style of Vise—the best yet made. It is **Stronger** than any other, whether of Foreign or of American make; always parallel and holding with a tighter "grip." The jaws are of convenient shape for the workman to get near his work equally well for filing or chipping, instead of the heavy, clumsily formed jaws of the cast iron Single Screw Vises of the common "parallel" type, and which, depending upon slides alone for preserving parallelism, can never be screwed up very hard without "jamming" on the slides or breaking.

Our New Vise combines all the advantages of the "Peter Wright" Leg Vise, of strength and lightness, fastening to the floor and bench, and at the same time greatly superior to it; is always perfectly parallel at all points of opening, and never gets out of line. Embodying the same general principle as the well known Chain Vise, so long made by us, we have by new, scientific proportioning of all the parts, and with our recently improved metals for their manufacture, obtained so perfect a tool, that we now *warrant* these Vises for *three years* from date of manufacture stamped upon each.

The Jaws are of best Tool Cast Steel, welded on, file cut and properly hardened. The screws are forged of the best refined iron, and work in *solid cut thread* boxes.

The lower screw maintains the parallel position of the two jaws, by having exact motion with the upper working screw through the connecting chain which regulates it.

The chain is very accurately made of steeled links and rivets, and having no strain of the work upon it, is therefore as durable as all the other parts.

Prices with Special Discounts to the Trade.

No. 1,	Jaws 3½ in.	x ¾ in.	Screws ⅝ in.	diameter.	Lever 9 in.	long,	Opens 4½ in.		$8 00
" 2,	" 4½ in.	x 1 in.	" 1¾ in.	"	" 13 in.	"	" 5½ in.		12 00
" 3,	" 5½ in.	x 1⅝ in.	" 1¾ in.	"	" 16 in.	"	" 6½ in.		17 00
" 4,	" 6½ in.	x 1⅝ in.	" 1⅝ in.	"	" 19 in.	"	" 7½ in.		22 00
" 5,	" 7 in.	x 1⅝ in.	" 1¾ in.	"	" 24 in.	"	" 9 in.		30 00
" 6,	" 8 in.	x 1⅝ in.	" 1¾ in.	"	" 26 in.	"	" 10 in.		34 00

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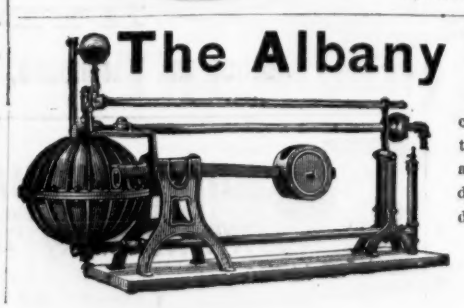
PATENT APPLIED FOR. Send for Circular.



The Albany Steam Trap.

This Trap automatically drains the water of condensation from *Heating Coils,* and returns the same to the Boiler *whether* the Coils are *above or below* the water level in Boiler, thus doing away with pumps and other mechanical devices for such purposes. Apply to

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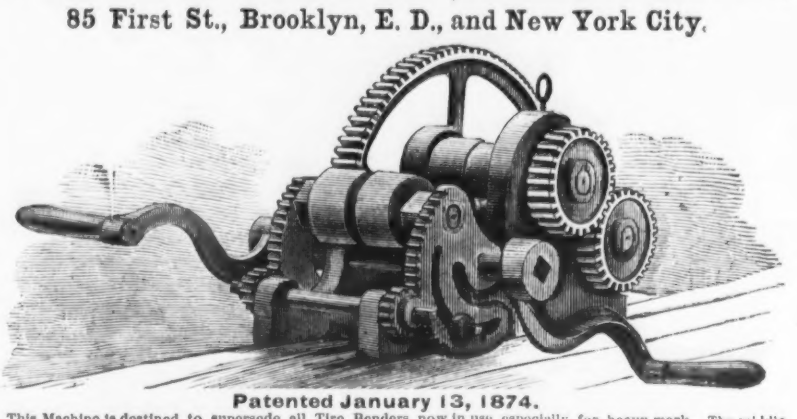

Patented January 13, 1874.

This Machine is destined to supersede all Tire Benders now in use, especially for heavy work. The middle roller can be readily removed and readjusted, thus allowing Tires to be withdrawn without difficulty after being bent. Fifth Wheels and Tires never slip while being bent in this Machine. One man can bend a Tire 3x1 without difficulty.

Manufacture Carriage Materials, Axles, Springs, Blacksmiths' Supplies, Bolts, Wood Work, Trimmings, &c.

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SOLE OWNERS AND MANUFACTURERS.

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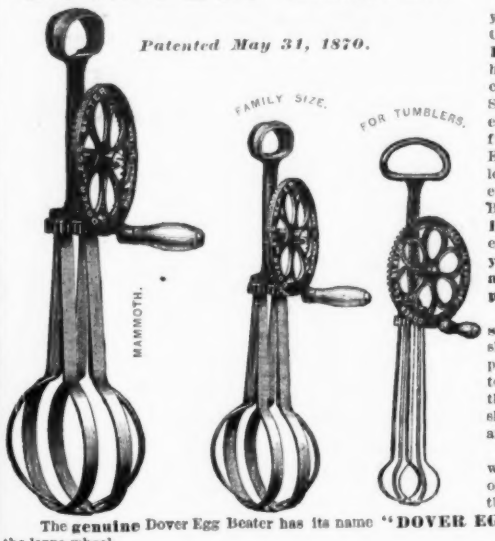


Special Notice to the trade.

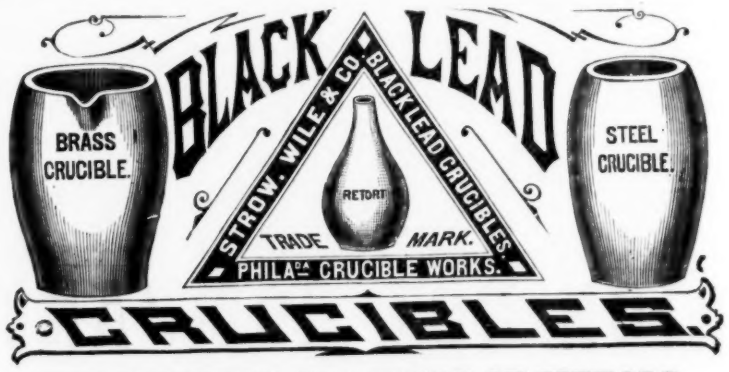
The long contested suit (more than two years' in court) Monroe *vs.* Dover Stamping Co., which was brought to **destroy** the **DOVER EGG BEATER PATENT,** has been **decided in our favor** (see decision of the Circuit Court of the United States, Sept. 3, 1874, Shepley, judge), thus ending disastrously to our opponents, and fully vindicating the integrity of the Dover Egg Beater Patent, which we shall maintain legally against all who infringe the same or either of our seven other patents on Egg Beaters. **Imitations** of our **Dover Egg Beaters** or either of the Egg Beaters covered by our Patents, **manufactured beyond the limits of the United States, and brought here for sale, will be promptly and severely dealt with.**

All persons are cautioned against **buying, selling** or **using** such infringements, as we shall prosecute all concerned in the illegal practice. We have already commenced suits to suppress the **manufacture** and **sale** of the so-called **PEERLESS BEATER,** and shall require all who infringe our rights to answer legally for their acts.

Remember that **buying** and **selling** as well as **manufacturing** any infringements of our Patents exposes one **to three times** the damages awarded by a jury.

The **genuine** Dover Egg Beater has its name **"DOVER EGG BEATER"** legibly cast on the face of the large wheel.

DOVER STAMPING CO.



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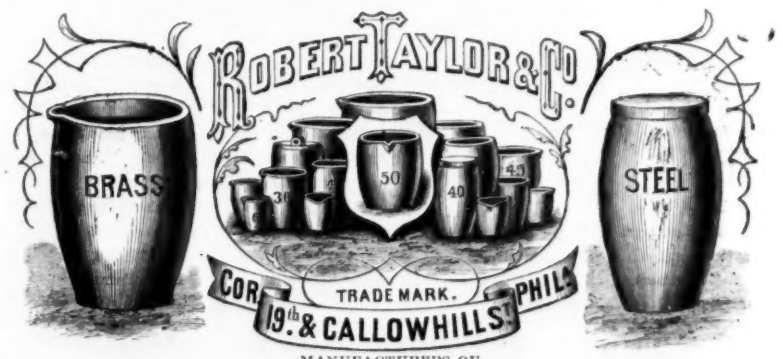

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Mr. Robert Taylor, who was for seven years the head of the late firm of Taylor, Strow & Co., and who is a practical mechanic, and familiar with all the details of the manufacture of Crucibles, attends personally to our manufacturing department. We would, therefore, respectfully solicit a continuance of the favors hitherto extended to him.

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Thomas T. Tasker, Jr. Stephen P. M. Tasker

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PASCAL IRON WORKS, Philadelphia,

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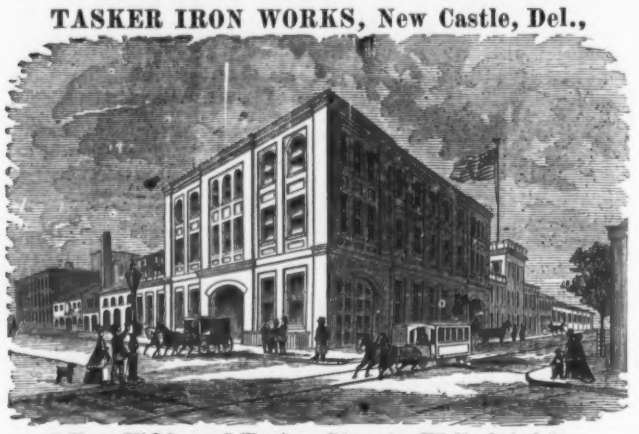

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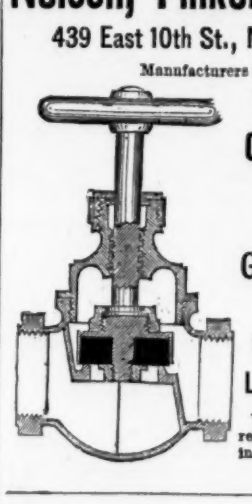

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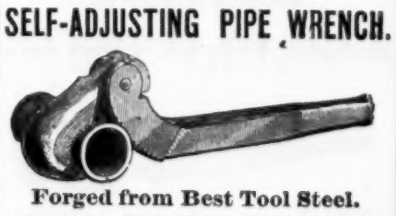

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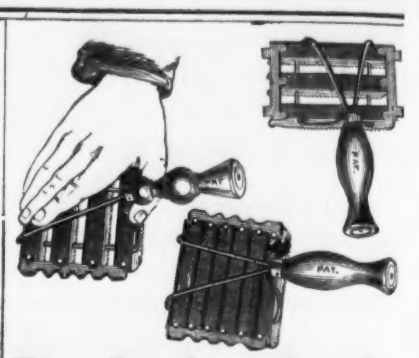

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Bonnell, Botsford & Co., Youngstown, O.....4
Borden & Lovell, 70 and 71 West, N. Y.....4
Cleveland, Brown & Co., Cleveland, O.....6
Coddington T. B. & Co., 25 Cliff, N. Y.....4
Conklin & Huerstel, 99 Market Slip, N. Y.....4
Fuller, Lord & Co., 139 Greenwich, N. Y.....4
Fuller, Dana & Fitz, 110 North, Boston.....4
Gardner Wm., 575 Grand, N. Y.....4
Harrison & Gilloon, 558 to 562 Water, N. Y.....4
Holden, Hopkins & Stokes, 104 John, N. Y.....4
Jackson & Chase, 206 and 208 Franklin, N. Y.....4
Judson B. F., 457 and 459 Water, N. Y.....4
Matthews Chas. W., 133 Walnut Phila.....5
Mohr J. J., Philadelphia.....5
Packard, Goff & Co., Youngstown, O.....4
Pettee & Mann, 228 and 229 South, N. Y.....4
Pierson & Co., 24 Broadway, N. Y.....4
Quincy John W., 98 William, N. Y.....4
Richards D. W. & Co., 92 Mangin St., N. Y.....4
Richardson J. O., 329 Walnut, Philadelphia.....5
Smith Gam'l G. & Co., 342 Pearl, N. Y.....4
Stroul Wm. Lawrence, 104 John, N. Y.....4
Wallace Wm. H. & Co., Albany and Washington streets, N. Y.....
Warner A. B. & Sons, 28 and 29 West, N. Y.....4
Williamson James & Co., 69 Wall, N. Y.....4
Whitney A. R. & Co., 58 Hudson N. Y.....4

Iron, *Manufacturers of.*
Britannia Iron Works, Middlesbro', Eng.....6
Burden Iron Works, Troy, N. Y.....4
Cleveland Rolling Mill Co., Cleveland, O.....6
Coffin Wm. E. & Co., 8 Oliver, Boston.....4
Boston Rolling Mills, 17 Battermarch, Boston.....4
Everson, Macrum & Co., Pittsburgh, Pa.....
Fulton S. & Co., 242 S. Third, Phila.....5
Girard Rolling Mill Co., Girard, O.....4
Leonard John, 450 & 451 West st., N. Y.....4
Milwaukee Iron Co., Milwaukee, Wis.....6
Naylor & Co., 6 Oliver, Boston.....4
New Haven Rolling Mill Co., New Haven, Ct.....6
Old Dominion Iron & Nail Works Co., Richmond, Va. 6
Oxford Iron Co., 81 Washington, N. Y.....4
Phœnix Iron Co., 410 Walnut, Phila.....5
Rowland Wm. & Harvey, Phila.....36
Shoenberger & Co., Pittsburgh, Pa.....4

Iron, Swedish, *Importers of.*
Jessop Wm. & Sons, 91 and 93 John, N. Y.....32
Mitander Nils, 69 William, N. Y.....4

Lace Leather, *Manufacturers of.*
Fales Geo. S., Pawtucket, R. I.....24

Lamps, *Manufacturers of.*
Patent Mechanical Lamp Co., 138 Chambers, N. Y...21

Lanterns, *Manufacturers of.*
Dietz R. E., (Tubular) 54 and 56 Fulton, N. Y.....36
Howard & Morse, 45 Fulton, N. Y.....2

Lead Pipe, &c., *Manufacturers of.*
Bayley, Farrell & Co., Pittsburgh, Pa.....2

Keys and Cutters, *Manufacturers of.*
Barnes Geo. & Co., Syracuse, N. Y.....10

Knob and Doweling Screws, &c., *Makers of.*
Thurston Knob Screw Co., 349 Washington, Boston..

Locks, *Manufacturers of.*
Bohannan Wilson, Broadway and Kossuth, Brooklyn, E. D.....
Branford Lock Works, Branford, Conn.....30
D. K. Miller Lock Co., 712 Cherry, Philadelphia.....36
Romer & Co., Newark, N. J.....11
Trenton Lock Co., 45 Warren, N. Y.....13
Yale Lock Mfg. Co., 298 Broadway, N. Y.....5

Machinery, *Makers of.*
Bement Wm. B. & Son, Philadelphia.....35
Chapin Machine Co., New Hartford, Ct.....35
Goodspeed & Wyman, Winchendon, Mass.....34
Pratt & Whitney Co., Hartford, Conn.....34
Sellers Wm. & Co., 1600 Hamilton, Phila.....35
Watson Andrew, 537 Dickinson, Phila.....35
Wetherill Robert & Co., Chester, Pa.....34
Wood Thomas, 2106 Wood, Phila.....35

Machine Screws, *Makers of.*
American Screw Co., Providence, R. I.....13
Lyon & Fellows Mfg. Co., Williamsburg, N. Y.....29
Rochester Machine Screw Co., Rochester, N. Y.....13

Machinists' Tools, *Makers of.*
Blaisdell P. & Co., Worcester, Mass.....35
Harrington Edwin & Son, 15th st. and Pa. ave., Phila.34

Machinery and Tool *Importers of.*
Graham Bros., 122 Cannon street, London, E. C.....34

Mathematical Instruments.
Keuffel & Esser, 111 Fulton, N. Y.....36

Measuring Tapes.
Eddy Geo. & Co., 558 Classon Ave., Brooklyn, N. Y..10

Meat Cutters. *Makers of.*
Whittemore D. H. Worcester, Mass.....33

Metal Dealers and Brokers.
Coddington T. B. & Co., 25 and 27 Cliff, N. Y.....2
Colt Edward W., 205½ Walnut, Phila.....4
Cort N. L. & Co., 220 & 222 Water, N. Y.....2
Crane U. O., 104 John, N. Y.....4
Gregg H. L. Co., 108 Walnut, Phila.....5
Pheips, Dodge & Co., Cliff, bet. John & Fulton, N. Y. 2
Purves A. & Son, cor. South and Penn, Phila.....16
Quincy J. W., 98 William, N. Y.....2
Sturges Frank & Co., 72, 74 & 76 Lake, Chicago.....3
Thomson A. A. & Co., 213 and 215 Water, N. Y.....2
Van Wart & McCoy, 43 Chambers, N. Y.....2

Metallurgists.
Britton J. Blodgett, 339 Walnut, Phila.....5
Drown Thomas M., Lafayette College, Easton, Pa...5
Maynard & Van Rensselaer, 24 Cliff, N. Y.....5
School of Mines, E. 49th, N. Y.....5

Mining Spikes
Roseberry Geo. D., Pottsville, Pa.....4

Miner's Candles, *Makers of.*
Joseph Boyd's Sons, 12 Franklin, N. Y.....27

Molding Machines, *Makers of*
Corbin P. & F., New Britain, Ct.....30

Molders' Tools.
Carter H., 230 Pearl, N. Y.....10

Mop Heads. *Manufacturers of.*
Buffalo Hardware Co., Buffalo, N. Y.....3

Mouse Traps, Catchemalive. *Makers of.*
Dietz R. E., 54 and 56 Fulton, N. Y.....36

Nickel Platers.
Hartman John, 1042 Ridge avenue, Philadelphia.....9
New York Nickel Plating Co., 133 West 23th, N. Y....9

Norway Shapes. *Rollers of.*
Rowland Wm. & Harvey, Frankford, Phila.....36

Note Broker.
Gallaudet P. W., 3 and 5 Wall, N. Y.....3

Nuts, Bolts, etc., *Makers of*
American Bolt Co., 210 Lawrence, Lowell, Mass.....13
Arms, Bell & Co., Youngstown, O.....12
Carpenter David, 402 Water N. Y.....4
Clark Bros. & Co., Millidale, Conn.....12
Fuller, Lord & Co., 139 Greenwich, N. Y.....4
Haskell W. H. & Co., Pawtucket, R. I.....12
Lewis, Oliver & Phillips, Pittsburgh, Pa.....13
Old Colony Rivet Works, 116 Chambers, N. Y.....12
Roseberry Geo. D., Pottsville, Pa.....5
Russell, Birdsall & Ward, Port Chester, N. Y.....36
Plumb, Burdict & Barnard, Buffalo, N. Y.....36
Sternbergh J. H., Reading, Pa.....12
Union Nut Co., 78 Beekman N. Y.....22

Oilers. *Makers of.*
Austin J. & Co., 168 Fulton, N. Y.....12

Old Iron, etc.
Gregg H. L. & Co., 108 Walnut, Philadelphia.....5

Ore Crushers.
Blake Crusher Co., New Haven, Ct.....34

Packing for Engines, &c., *Manufacturers of.*
Glanding Jas. & Co., 115 Queen, Philadelphia.....11

Paints.
Rocky Mountain Vermillion Paint Co., Prov., R. I..28

Paints and Oils, *Dealers in.*
Devoe F. W. & Co., 117 Fulton, N. Y.....

Patent Solicitors.
Briesen A. V., 253 Broadway, N. Y.....15
Howson & Son, Phila. and Washington, D. C.....8
Munn & Co., *Scientific American*, 37 Park Row N. Y..29

Picture Nails, etc., *Manufacturers of.*
Richards T. C. & Co., 47 Murray, N. Y.....3

Pipes, Fittings, etc., *Makers of.*
Eaton & Cole, 58 John, N. Y.....22
McNab & Harlin Mfg. Co., 56 John, N. Y.....22
Nelson, Finkel & Co., 439 E. 10th st., N. Y.....22
Pancoast & Maule, 227 Pear, Phila.....22

Pipe, Water and Gas, *Makers of.*
Brick R. A. & Co., 112 Leonard, N. Y.....6
McNeal John & Sons, Burlington, N. J.....6
Morris, Tasker & Co., 15 Gold, N. Y.....22
National Tube Works Co., 78 William, N. Y.....22
Starr Jesse W. & Sons, Camden, N. J.....6
Warren Foundry & Mach. Co., Phillipsburg, N. J.....22
Wood R. D. & Co., 173 Broadway, N. Y.....22

Piston Packing.
Candield John & Co., 1321 Fairmount Ave., Phila.....21

Plane Irons. *Manufacturers of*
Buck Bros., Millbury, Mass.....3
H. Chapin's Son, Pine Meadow, Conn.....6
Middletown Tool Co., Middletown, Conn.....29

Planes, *Manufacturers of.*
H. Chapin's Son Pine Meadow, Conn.....6
Greenfield Tool Co., Greenfield, Mass.....30
Stanley Rule & Level Co., 85 Chambers, N. Y.....22

Plated Ware
Rogers & Bro., 208 Broadway.....11

Plumbago Lubricator.
N. Y. Black Lead Works, 172 Forsyth, N. Y.....36

Plumbers' Materials, *Manufacturers of*
Carr Wm. S. & Co., 106 Centre, N. Y.....22

Portable and Stationary Forges
Kellogg Wm. P. & Co., 121 Chambers N. Y.....24
Keystone Portable Forge Co., 129 Exchange place, Philadelphia.....6
Manning H. S. & Co., 111 Liberty, N. Y.....6

Presses, Power. *Makers of.*
The Stiles & Parker Press Co., Middletown, Ct.....28

Pressure Blowers. *Makers of.*
Sturtevant B. F., 72 Sudbury, Boston.....55

Pumps, *Makers of.*
Burlingham & Purdy, 103 Chambers St.....7
Douglas W. & B., Middletown, Conn.....7
Union Mfg. Co., 99 Chambers, N. Y.....7
Valley Mch. Co., Easthampton, Mass.....7

Pyrometers.
Brown Edward, 311 Walnut, Phila.....

Railroad Supplies.
Potter, Hoffman & Co., 110 Liberty, N. Y.....6

Rails, *Importers of.*
Congreve Chas. & Son, 104 and 106 John, N. Y.....32

Rails, Iron or Steel, *Makers of.*
Atkins Bros., Pottsville, Pa.....6
Cambria Iron Co., Johnstown, Pa.....5
Cleveland Rolling Mill Co., Cleveland, O.....6
Griswold John A. & Co., Troy, N. Y.....32
Milwaukee Iron Co., Milwaukee, Wis.....6

Razor Straps, *Makers of.*
B. F. Badger, Charlestown, Mass.....8

Rivets.
Old Colony Rivet Works, 116 Chambers, N. Y.....12
Timmes Peter, 281 North 6th, Brooklyn, E. D.....4

Road Scrapers, &c., *Makers of.*
Revolving Scraper Co., Columbus, O.....23

Rolling Mill Machinery, etc., *Manufacturers of*
Birmingham Iron Foundry, Birmingham, Ct.....4
Moore James, Cor 16th and Buttonwood, Phila.....29

Rules, *Manufacturers of.*
H. Chapin's Son, Pine Meadow, Ct.....6
Stanley Rule and Level Co., 85 Chambers St.....22

Sash Weights (sectional), *Manufacturers of.*
Sprague Sash Weight Co., Youngstown, O.....2

Saws, *Makers of.*
Atkins E. C. & Co., Indianapolis, Ind.....10
Boynton E. M., 80 Beekman, N. Y.....10
Flint J. & Co., Rochester, N. Y.....10
Disston Henry & Sons, Phila.....25
James Ohlen, Columbus, O.....10
Peace Harvey W., Williamsburg, N. Y.....10
Spear & Jackson, 116 Duane, N. Y.....29
Wheeler, Madden & Clemson, Middletown, N. Y.....10

Saw Frames, Wood, *Makers of.*
Boyntgn E. M. 80 Beekman, N. Y.....10
Peace Harvey W., Williamsburg, N. Y.....10

Scales. *Manufacturers of.*
Richie Bros., 9th near Coates, Phila.....10
Shattuck W. F. & Co., 113 Chambers, N. Y.....8
Universal Family Scale Co., Guilford, Conn.....13

Screws, *Makers of.*
American Screw Co., Providence, R. I.....13
Miles F. S., 208 Quarry, Phila.....12

Screws, *Importers of.*
Bruce Geo. W., 1 Platt, N. Y.....5
Fiein Alfred & Co., 93 Chambers, N. Y.....31
Gueutal George & Son, 39 W. 4th, N. Y.....10

Shovels, &c.
Clement & Hawks Mfg. Co., Northampton, Mass.....21
Birmingham Shovel Co., 81 Chambers, N. Y.....9
Middleboro Shovel Co., 63 Oliver, Boston.....8
N. Y. Shovel Works (Screening Shovels), 1258 Broadway, N. Y.....21

Skates.
Barney E. H., Springfield, Mass.....3
Florence Sewing Machine Co., Florence, Mass.....13
Graham & Haines, 88 Chambers, N. Y.....20
Patterson Bros., 27 Park Row, N. Y.....27
Union Hardware Co., 120 Chambers, N. Y.....28

Smelting Works.
Reeves Paul S., 760 South Broad St., Phila.....36
Du Plaine & Co., 1303 & 1305 Buttonwood, Phila.....31

Stamped and Japanned Tin Ware.
Schelder Jos. & Co., 58 Beekman, N. Y.....6
Shepard Sidney & Co., Buffalo, N. Y.....27
Sturges Frank & Co., 72, 74 & 76 Lake, Chicago.....3

Steam Hammers, etc., *Makers of.*
Dudgeon Richard, 24 Columbia, N. Y.....31

Snaps, Harness. *Makers of.*
Middletown Tool Co., Middletown, Conn.....39

Spiegel.
Quincy John W., 98 William, N. Y.....2

Spikes, R. R. &c., *Manufacturers of*
Fahrion, G. W., Niles, Ohio.....4
Starke Adolph, 441 East 10th, N. Y.....4

Springs.
Rowland Wm. & Harvey, Frankford, Phila.....36

Squares, Steel and Iron, *Makers of.*
Hart, Bliven & Mead Mfg. Co., 243 Pearl, N. Y.....30

Steam Pumps, etc., *Manufacturers of*
Carr A. 43 Cortlandt, N. Y.....20
Enterprise Hydraulic Works, 2218 Race St., Phila....34
Guild & Garrison, Williamsburgh, N. Y.....31
Hall C. Henry & Co., 29 Cortlandt, N. Y.....34
Philadelphia Hydraulic Works, cor. Evelina and Levant, Philadelphia.....35
Steele & Condict, 88 Liberty, N. Y.....39

Steam Traps.
Jones Alonzo L., 51 S. 4th, Phila.....12
Richards & Pike, 205 Ledger Place, Philadelphia....36
Townsend & Blessing, Albany, N. Y.....21

Steel Castings.
The McHaffie Steel Castings Co., Evelina and Levant Streets, Philadelphia.....16

Steel Importers.
Carr J. & Riley, 82 John, N. Y.....31
Cocker Bros., Sheffield, England.....32
Congreve Chas. & Son, 104 and 106 John, N. Y.....32
Hobson Francis & Son, 97 John, N. Y.....32
Jessop Wm. & Sons, 91 and 93 John, N. Y.....32
Moss F. W., 80 John, N. Y.....32
Piersons & Co., 24 Broadway, N. Y.....4
Sanderson Bros. & Co., 16 Cliff, N. Y.....32
Sanderson Geo. & Co., 57 John, N. Y.....32
Van Wart & McCoy, 43 Chambers, N. Y.....32
Wardlow S. & C., 13 Gold, N. Y.....32
W. Hawksworth, Ellison & Co., 72 John, N. Y.....32

Steel Manufacturers.
Anderson & Woods, Pittsburgh.....35
Chrome Steel Co., Brooklyn, E. D.....32
Cleveland Rolling Mill Co., Cleveland, O.....6
Gautier D. G. & Co., Jersey City, N. J.....32
Griswold John A. & Co., Troy, N. Y.....32
Hussey, Wells & Co., Pittsburgh.....36
Miller, Barr & Parkin, Pittsburgh.....32
Reiter, Sutton & Co., Pittsburgh, Pa.....33
Reese, Graff & Woods, Pittsburgh.....33
Rowland Wm. & Harvey, Frankford Phila.....36
Singer, Nimick & Co., Pittsburgh.....32

Steel Pens, Spencerian.
Ivison, Blakeman, Taylor & Co., 140 Grand, N. Y....24

Stone Crushing Machines.
Blake Crusher Co., New Haven, Ct.....31

Stoves.
Michigan Stove Co., Detroit, Mich.....24
Resor Wm. & Co., Cincinnati, O.....24

Stove Boards, *Manufacturers of.*
Shepard Sidney & Co., Buffalo, N. Y.....27

Stove Polish, *Makers of.*
"Gem" Stove Polish, 173 Forsyth, N. Y.....35

Street Lamps, *Makers of.*
Schelder Jos. & Co., 58 Beekman, N. Y.....6

Twist Drills, *Makers of.*
Morse Twist Drill & Mach. Co., N. Bedford, Mass....31

Tackle Blocks, *Makers of.*
Burr & Co., 81 Peck Slip N. Y.....3
Penfield Block Works, Lockport, N. Y.....13

Tacks.
American Tack Co., 117 Chambers, N. Y.....13
Field A. & Sons, Taunton, Mass.....9
Grundy & Kenworthy, 165 Greenwich, N. Y.....30
Loring Samuel, Plymouth, Mass.....30

Tea Trays, *Importers of.*
Dickinson Henry, 66 and 68 Reade, N. Y.....11

Tinners' Tools and Machines.
Headley W. L., 35 William, N. Y.....3

Turbine Water Wheels, &c.
Swain A. M., North Chelmsford, Mass.....35

Tube Expanders.
Dudgeon Richard, 24 Columbia, N. Y.....34

Valves, Gas, Water and Steam.
Chapman Valve Co., 75 & 77 Kilby, Boston.....22
Ludlow Valve Mfg. Co., Troy, N. Y.....35

Varnishes and Japans.
London Mfg. Co., 246 Grand, N. Y.....24

Vises.
Backus Vise Co., 78 Beekman, N. Y.....21
Fisher & Norris, Trenton, N

Death of Mr. John Laird.

This gentleman, the well known Birkenhead shipbuilder, and the builder of the notorious Alabama cruiser, died on Thursday last. He was born in Greenock (Scotland) in 1805, was the son of Mr. Wm. Laird, of Birkenhead, and was head of the great firm of Laird & Sons, shipbuilders, up to 1861, when he retired. He might be said to have created the town of Birkenhead, which is on the opposite side of the Mersey to Liverpool, and has now over 100,000 inhabitants. He was the first member of Parliament elected for that town, and was twice subsequently re-elected. His loss will be greatly felt both at Birkenhead and Liverpool, and although he incurred an accumulation of public wrath on account of the Alabama incident, he was much respected by all who personally knew him. An article in the *Practical Magazine* gives some details which are of interest in connection with the event above recorded. That magazine says: That one of the first, if not the first, iron ship ever constructed, was built by Mr. John Laird in 1829. The article tells us that it is undoubtedly due to Mr. Laird that the superiority of iron over timber came to be so largely recognized. After having satisfied himself, not only of the practicability of introducing iron into the shipbuilding trade, but of its superiority to timber, Mr. Laird persevered with its use in the face of many obstacles and almost unconquerable prejudice. In 1833 he built an iron paddle wheel vessel, named the Lady Lansdowne, for the city of Dublin Steam-packet Company. Mr. Laird fitted out General Chesney's expedition for the exploration of the river Euphrates in 1834. The success of the vessels employed in the exploration of the Euphrates induced the East India Company to purchase from Mr. Laird, for the navigation of the Indus, a steamer that he was building for Savannah. In the year 1837 Mr. Laird launched L'Egyptien, the first iron steamer constructed for the navigation of the Nile, which steamed from Liverpool to Alexandria. Up to 1834, Mr. Laird had constructed six iron vessels altogether, and his resolute perseverence with the use of iron for shipbuilding purposes, when it was discarded and discredited by other builders, entitles him to be regarded as the pioneer of iron shipbuilding. But he had not even yet conquered all his difficulties, although he had unmistakably proved that iron could, with advantage, be used in the construction of vessels of all kinds, whether for lake, river, or ocean navigation. In consequence of the success of the vessels Mr. Laird had built up to this time, the well known Mr. Assheton Smith, in the spring of 1835, applied to Mr. Laird to build an iron yacht. Mr. Laird undertook to do so. But his friends persuaded Mr. Smith that in entering into such a contract he had made a ruinous mistake; that a yacht built of iron would never be safe; and the conclusion of the matter was that he asked Mr. Laird to cancel the contract. This Mr. Laird agreed to do in September, 1835; but prejudice did not long hold Mr. Smith in thrall. He again saw Mr. Laird, and in 1837 negotiated with him for the construction of an iron yacht —the Glowworn. The first important advance in the direction of building a larger size of iron vessels was made by Mr. Laird in 1837, when he received from the General Steam Navigation Company, of London, an order to build the Rainbow (600 tons), for service between London and Ramsgate. The vessel already built by Mr. Laird for the East India Company had given so much satisfaction that the body contracted with him in 1839 for the construction of an armed flotilla, to be employed in the defence of their interests in the East. Three vessels of light draught, and each carrying two 9-pounder pivot guns on swivels, were, therefore, built at Birkenhead for the navigation of the Tigris and the Euphrates. They were all of the same size and build—153 tons burthen. Like previous vessels built for the same company, they were sent in pieces and put together by Birkenhead artisans on the banks of the Euphrates.

Mr. Laird built his first vessel for the admiralty in 1839. Previous to that time he had made repeated applications to the Lords of the Admiralty to try the use of iron as a substitute for timber; but the prejudices of their lordships in favor of the "wooden walls" were difficult to eradicate. At last, however, they were induced through Sir C. Wood (now Viscount Halifax), the then Secretary to the Admiralty, to order from Mr. Laird an iron vessel to be called the Dover, for the station of that name. In 1842 an accident happened to one of the iron vessels built by Mr. Laird which went far to confirm the growing confidence in the strength of iron ships. The ferry steamer Nun grounded on the stone pier at Birkenhead, her after-end resting on the pier, and her bow on the bare rock, the distance between the points of support being 81 ft. The whole weight of machinery, 65 tons, was in the middle of this unsupported space, but she floated off next tide without having received the slightest damage. Enough, and perhaps more than enough, has been stated to show that no one has done more to promote the use of iron as a material for shipbuilding purposes than Mr. John Laird. Before 1840 he had built altogether 32 iron vessels of all kinds. One of the first and most serious drawbacks to the use of iron was the difficulty of working the compasses. The first really practical results were obtained by Prof. Airey, in the course of his experiments on the Rainbow. The settlement of the practical difficulty of adjusting the compasses gave a great impetus to the construction of iron ships for sea-going. In 1843 Mr. Laird took out a patent for vessels with a rudder at each end, adapted either for ferry or gunboats. The object of its application to the latter is to allow of two guns being fired at each end on line of keel, without exposing the broadside to the enemy. Many vessels subsequently built on this principle were found to answer very well for foreign armaments; and it is noteworthy that the ferry boats used on the Mersey have since been built almost entirely on this plan. Another patent taken out by Mr. Laird was for the construction of river boats of shallow draught of water.

The exigencies of the Russian war gave a stimulus to the iron ship building trade of this country, such as it had never before received and has not since experienced, if we except the subsequent American war, when light vessels came so much into request for running the blockade of the Southern ports. One of the admiralty requirements during the Russian war was the construction of what are known as mortar vessels, having great strength and a light draught. Such a vessel Mr. Laird built in the incredibly short space of three weeks. She was named the Cupid, and carried a burthen of 102 tons. This was probably the quickest and smartest thing that has ever been done in naval arhitecture. On her trial the Cupid yielded such satisfactory results that the government decided on building 60 others of the same kind. The contracts for 15 of the number were placed with Mr. Laird, along with those for 14 gunboats, each of 230 tons burthen. It was an occasion of emergency, and Mr. Laird was equal to the occasion. He completed the whole twenty-nine vessels in eight months from the time they were ordered, being at the rate of nearly one per week. In the spring of 1860 Mr. Laird launched, for the City of Dublin Steamship Company's mail packet service between Kingstown and Holyhead, the Ulster, Munster, and Connaught, three duplicate vessels of 2039 tons; builder's measurement, 334 feet length, 35 feet breadth, and 19 feet depth of hold. There is a kind of mournful interest in the fact that the steam launch with which the British government furnished Dr. Livingstone in 1858, for his explorations on the Nile, was built at the Birkenhead works, and, from a scientific point of view, this vessel is interesting as being the first constructed of the homogeneous steel plates, which, although only half as thick, have a strength equal to that of the best iron boiler plates. For the great ocean steamship companies that have their headquarters at Liverpool, Mr. Laird and his sons have built some of the finest merchantmen afloat. Upward of fifty steamers have been constructed at the Birkenhead works for river navigation in different parts of the world, beside some 25 specially designed for the navigation of the Indus, the Ganges and the Amazon. The article concludes: If all the vessels built by the Messrs. Laird could be brought together, they would form the most splendid fleet and the most imposing spectacle that could well be imagined, if indeed, the imagination can at all grapple with the idea of over 400 vessels of all kinds and of all dimensions riding at anchor! If we consider the value of these 400 vessels, at the moderate rate of £25 per ton, 240,000 tons represent not less than six to seven millions sterling, as the turnover of the Messrs. Laird since the first iron vessel was built at Birkenhead in 1829. The shipbuilding yard has been twice the scene of serious conflagrations.

The Second Anniversary of the Boston Fire.

Two years ago last Monday, the business section of Boston was destroyed by fire. The next morning's sun rose on a troubled but not disheartened city, although it seemed that years might not bring back the store of wealth one night had swept away. But the old spirit remained, and citizens went bravely to work with faith in their resources, and, with hope for the best, resolved to build up a city that a little spark would not set in flames. The beautiful new buildings rose up almost by magic. Streets were widened, new and larger water pipes were laid, grades were raised, and the fire department was improved.

One year ago saw the work well advanced. Nearly every lot was covered with grand piles of brick, stone and iron. But much was left to be done. The streets were sloughs of mud, and after sunset they were as dark as were those of the whole city for the few nights after the fire, when the gas had given out, and the late goers had to trust to the lurid glow in the sky above the ruins to find their way home. The past year has been spent in finishing up, and the committee on paving will tell any one who goes to the City Hall that the work has been by no means light. But to-day we look with pride on a finished business quarter, with wide and smoothly paved streets bordered by an infinite variety of architecture; most of it good a very little bad, and a very little indifferent. The scaffoldings have come down, and the new buildings now show to their best advantage.

Under an efficient system of inspection the building law has been thoroughly enforced, and a rigid policy on the part of the insurance companies has fully guarded any loopholes that the law may have left. The wooden mansard roofs in the rebuilt districts, for instance, may be counted on the fingers. The fire department has been thoroughly reorganized, and its responsible management gives us such a feeling of security as was never before felt. None but those who sigh for the red-shirted glory would return to the old order of things.

The rebuilt section stands complete to-day. Here and there we yet see a new building going up, and on a few streets a vacant lot or so. But that is what we see in all other parts of the city. The building operations near the new Post Office are in active progress, and when finished we shall see four of the largest and most costly fire proof buildings in the country. Work has at last begun on the long expected extension of the Post Office, and that noble structure will soon cover the entire square, as it should. The building business does not appear to have been overdone. Notwithstanding the general complaints of dull times, nearly all the stores are tenanted, and the wholesale business quarter is rapidly extending both to the south and to the north ends. On the whole, the general testimony is that no city in the country has such handsome and substantial business architecture as has Boston to-day. The lesson of the fire was learnt at a terrible price; but our people now know that to build wisely they must build well.—*Boston Advertiser.*

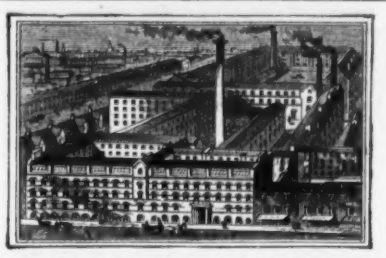
Puddlers' Strike in Western Pennsylvania.—A dispatch from Pittsburgh, dated the 15th instant, says: At a meeting of the iron manufacturers yesterday, the committee appointed to confer with the puddlers reported that they had made the following proposition to them: With iron at 3 cents, they would pay $5 for boiling; at 2½ cents, $4·50; and if iron should go above 3 cents they would pay the present rates. The puddlers are not willing to accept these terms. Another meeting will be held on Wednesday next.

THE HOME CORN SHELLER.
The Best Hand Sheller for family use in the market
Every Machine Warranted.
Price, $2·50. Every Farmer and Poultry Raiser needs it
Liberal discount to Hardware Trade.
LIVINGSTON & CO., Pittsburgh, Pa.

HOWSONS'
OFFICES FOR PROCURING
UNITED STATES AND FOREIGN
PATENTS,
Forrest Buildings
119 SOUTH FOURTH ST., PHILADELPHIA,
AND MARBLE BUILDINGS
605 Seventh St. (Opposite U. S. Patent Office,
Washington, D. C.
H. HOWSON, Solicitor of Patents. | C. HOWSON Attorney Law.
Communications should be addressed to the
PRINCIPAL OFFICES PHILADELPHIA.

PORTABLE PIPE AND BOLT
Threader and Cutter
Cuts off and threads from ⅛ inch to 3 inch Pipes and Bars. Also taps Nuts and Centers work ready for Lathe. One man can thread 3 inch Pipe with ease with Dies furnished with machine. No Pipe splitting; no bevel inside or out. Requires no skilled labor.
A Full Set of Sockets and Lengths for Making Nipples Furnished with each Machine.
ANY SOLID DIE CAN BE USED IN THIS MACHINE.
Send for Circular.
EMPIRE MFG. CO., 18 William Street, N. Y.

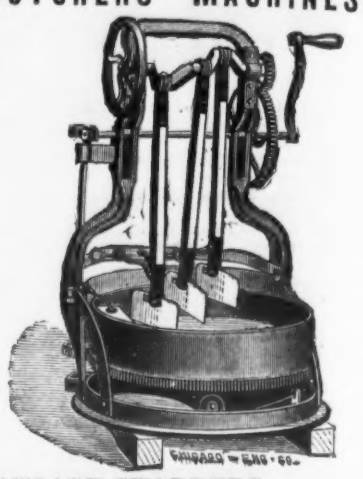
TRADE PAGE'S PATENT MAY. 8. 1866. MARK.
GEORGE S. FALES,
SUCCESSOR TO
FAIRBROTHER & FALES,
Sole Owner and Manufacturer of
Page's Patent Lace Leather,
And Manufacturer of
OAK BELTING,
Also, Picker or Moccasin Leather, for Boot and Shoe Packs.
Angular Belting and Pullies made to order.
PAWTUCKET, R. I.
Ask for Star Stamped Lace Leather.



Manufactory of the Spencerian Steel Pens, Birmingham, England.

Spencerian Double Elastic
STEEL PENS.
The superiority and excellence of these justly celebrated Pens are appreciated, as is shown in their constantly increasing sale. They are comprised in 15 numbers, of which *one number* alone has an annual sale of more than
5,000,000.
The *Spencerian Pens* are manufactured of the very best material by the most expert workmen in Europe, and are famous for their elasticity, durability and evenness of point.
The Spencerian Pens are For Sale by all Dealers.
We make Fifteen Numbers of Pens, differing in flexibility and fineness of point, adapted to every style of writing, as follows:
No. 1. College Pen. *Point Fine; Action Perfect.* This is a great favorite with our leading penmen, is largely used in the Schools and Commercial Colleges throughout the country, and gives better satisfaction than any Pen before the American Public.
No. 2. Counting-House Pen. *Point Fine and Flexible,* well adapted to the use of Correspondents and Accountants.
No. 3. Commercial Pen. *Point Medium.* An Easy Writing Business Pen.
No. 4. Ladies' Extra Pen. *Point Extra Fine and Flexible.* For Delicate Fine Hand Writing this is a very superior Pen.
No. 5. School Pen. *Point Fine, Medium in Flexibility.* For a durable School Pen it has never been equaled.
No. 6. Flourishing Pen. *Point Long, Flexible and Medium in Fineness.* For Off-hand Flourishing.
No. 7. Quill Pen. *Point Medium, Quill Action.* A Smooth, Easy Writing Pen. Its name well represents its qualities.
No. 8. Congress Penn. (New.) *Medium Flexible Point.* A *very* superior Pen for all styles of writing. This Pen undergoes a process that renders it non-corrosive and *three times* more durable than any ordinary steel Pen.
No. 9. Bank Pen. *Point Long and Flexible.* A great favorite with Accountants, Tellers, &c.
No. 10. Custom-House Pen. *Point Medium* Well adapted to all styles of Bold Free-Hand Writing.
No. 11. University Pen. *Point Medium, very Smooth and Flexible* The action of this celebrated Pen is very fine.
No. 12. Epistolaire Pen. *Point very Fine, and very Flexible.* This is the Finest Pointed Pen made, and for very Delicate Writing, Map and Fine Pen Drawing, it has no equal.
No. 13. Engrossing Pen. *Point Blunt and Smooth.* Particularly adapted to Coarse-hand Writing and Engrossing.
No. 14. Artistic Pen. *Flexible, with extra fine Point.* This Exquisite and Truly Celebrated Pen is the Best Pen extant for Fine Ornamental Writing.
No. 15. The Queen. *Point extra fine.* Admirably adapted to all kinds of Fine writing.
☞ *Sample Cards containing all the FIFTEEN Numbers, securely enclosed, will be sent by mail on receipt of 25 cents.*
IVISON, BLAKEMAN, TAYLOR & CO,
138 & 140 Grand Street, N. Y.

DRAW-CUT
BUTCHERS' MACHINES.



SAUSAGE CHOPPERS AND STUFFERS, LARD PRESSES.
First premium medals in 1871, at New York, Boston and Cincinnati. For sale to the Hardware Trade.
MURRAY IRON WORKS,
Burlington, Iowa.

DEAN'S New Patent (1873)
Screening Scoop SHOVEL
For Coal, Coke and Coal Ashes, and other Substances.

Patented in United States and England, 1873.
The largest frames are 12 by 18 inches, with seven bars, and are made of the Best Malleable Iron. They are, or can be, wired between bars by an arrangement of holes a quarter of an inch apart, by an ordinary person, to screen any size substance desired. They are warranted to be the most durable and practical Screening Shovel made, or money refunded.
Reference—All New York Gas Companies and Hotels.
☞ Smaller sizes on hand.
Please address orders to
A. SEE & SON,
N. Y. Shovel Works,
1358 Broadway. N. Y.

WM. RESOR & CO., Cincinnati,
Manufacturers of the

Awarded the First Premium, Illinois State Fair, 1874.
Awarded the First Premium, Ohio State Fair, 1874.
FASHION for Wood.
With or without Iron Clad, Copper Low Reservoir, and the Celebrated
MONITOR Coal and Wood Cook.

MICHIGAN STOVE CO.,
Detroit Mich.

Awarded First Premium at Michigan State Fair, 1874.
This Stove has not its Equal. Moderate in Price.
Manufacturers of
COOKING, PARLOR AND HEATING STOVES.
Made from the Best Brands of Lake Superior Charcoal and other First Class Brands of Iron.
Also Manufacture for The Western Trade,
The Prince of Base Burners, THE ARGAND.

NEW YORK SCREW BOLT WORKS.
(Estate of R. J. DEWHURST, deceased.)
JOHN COCHRANE, Executive Agent and Manager,
Office and Works, cor. Ave. D and 11th St., N. Y.
Bolts, Nuts, Turnbuckles, Washers, Forgings, &c
The attention of large consumers solicited.

COPAL VARNISHES, THE LONDON MFG. CO., DAZZLE BLACK BAKING JAPANS, CELEBRATED BRUNSWICK BLACK VARNISH, &C. HYATT & CO.
These Varnishes compare favorably in price, and are unexcelled for their purity, durability, and color. Contain no Coal Tar, Coal Gas, nor deleterious substances, BUT ARE MANUFACTURED FROM PURE GUMS.
Office, New York, 246 Grand St. PROPRIETORS. Factory, Newark, N. J., 113 Chestnut St.

HENRY DISSTON & SONS,

Keystone Saw, Tool, Steel and File Works,

Front and Laurel Streets, Philadelphia.

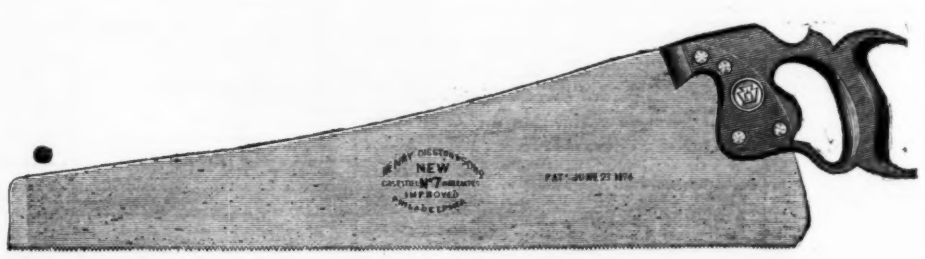
MANUFACTURERS OF

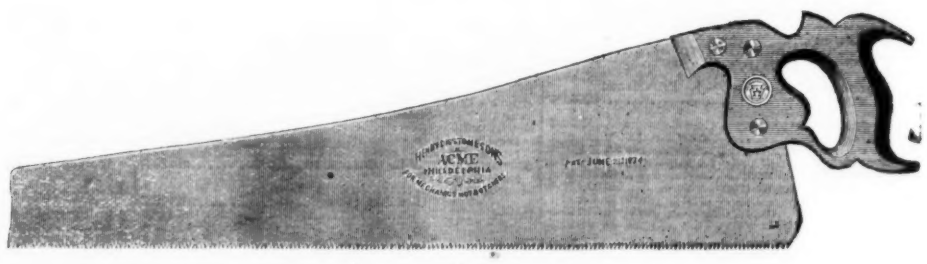
SAWS OF EVERY DESCRIPTION, FILES, &c.

Also Sheet Steel and Articles made from Sheet Steel.

Branch Works, Tacony, Philadelphia. **Branch House, Randolph & Market Streets, Chicago, Ill.**

HENRY DISSTON & SONS desire to call the attention of the Hardware Trade, also the Mechanics of this Country, to their





"NEW PATENT SKEW BACK HAND SAW,"

which has been pronounced by all first-class workmen who have used it, to be eminently superior in every respect to the old style hand saw. Its advantages are manifold, the peculiar formation of the blade actually stiffening and strengthening it in a remarkable degree, and the recess in the handle allowing the introduction of the thumb of the left hand and giving the operator full power to manipulate the saw, and the principle of bedding the handle in the blade bringing the operator closer to his work, an advantage will be readily appreciated by any mechanic. It is a singular fact that while vast improvements are constantly being made in all other kinds of saws, the hand saw of to-day in shape and style is similar to the hand saw of centuries ago. Recent experience has proved that it is as susceptible of improvement as any other saw. Our aim and object has ever been to assist the mechanic and lighten his toil, and one trial of our **NEW PATENT SKEW BACK HAND SAW** will prove how well we have succeeded.

New York Wholesale Prices, November 18, 1874.

HARDWARE.

Anvils.
Solid Cast Steel.....₱ ℔ 14c
Wright's.....₱ ℔ gold 11½c; over 250 ℔s 12c, gold
Armitage's Mouse Hole.....gold 11c
Wilkinson's.....₱ ℔ gold 11½c
Eagle Anvils, ₱ ℔ 11c currency.....dis 15&10 %

Apple Parers.
Domestic.....
Turn Table.....
Lightning.....
Hudson's.....} $7 @ 9 ₱ doz
Reading.....
Union.....
Skeleton Paring, Coring and Slicing.....
Turn Table, old style.....$6·75 dis 10 %
Bay State, Paring, Coring and Slicing.....$15 00 dis 10 %
Climax Slicer.....8 00

Augers and Bits.
Douglass.....
Ives.....
Beecher French, Swift&Co)} 1st quality.....dis 40 %
Griswold.....} 2d quality.....dis 40&5 %
Noble.....
Challenge.....dis 40&10 %
Snell Mfg. Co.....dis 15 @ 20 %
Russell Jennings.....dis 10 %
Lewis' Single Twist Bits.....dis 30 %
Andrews' Bits.....dis 25 %
Cook's Bits.....dis 40&10 %
" Augers.....dis 50 %
Expansive Bits, Clark's.....$18 @ $26—dis 15 %
" " Ives'.....$20 @ $30—dis 20&10 %
" " Blake's.....$20—dis 25&10&10 %
Hollow Augers, Douglass'.....dis 25&10 %
" " Ives'.....dis 25&10 %
" " French, Swift & Co.....dis 25&10 %
" " Bonney's Adjustable.....₱ doz $48—dis 25 %
" " Stearns'.....₱ doz $48—dis 25 %
" " Ives' Expansive.....each $4·50—dis 40 %
" " Cushman's Expansive.....dis 20 %
Double Cut Gimlet Bits, Shepardson's.....dis 20 %
" " Hartwell's.....dis 50 %
" " Douglass'.....dis 2d&10 %
" " Ives'.....dis 25 %
" " Ladd's.....dis 50&10 %
Griswold's Patent.....dis 20 %
Gimlet Bits.....dis 20 %
Morse's Bit Stock Drills.....dis 20 %
L'Hommedieu's Ship Augers.....dis 15 %
Watrous Ship Augers.....dis 15 %
Vaughan's Post Hole—
6 in. $28 60; 9 in. $25 per doz.....dis 20 %

Awls and Tools.
Aiken's.....dis 25 %
Nos. 42 and 43.....dis 35&10 %
Clark's.....dis 30&10 %

Axes.
Brook's.....per doz $12 00 @ 14 00 net
Blood's.....per doz $12 00 @ 13 00
Hunt's.....₱ doz $12 50 @ 14 00
Collins'.....₱ doz 11 00 @ 15 50 net @ dis 5 %
Hurd's.....₱ doz 11 50 @ 12 50
Simmons'.....₱ doz 11 00 @ 11 50
Morris'.....₱ doz 12 50 @ 13 50
Red Jacket.....₱ doz 12 00 @ 12 50
Mann's.....₱ doz 11 50 @ 13 00
" Double Bitted.....₱ doz 21 50 @ 22 00
Underhill's.....₱ doz 12 00 @ 13 00
" Crown.....₱ doz 12 50 @ 13 50
John Leverett's.....₱ doz 12 50 @ 15 50
Ten Eyck.....₱ doz $11 00 @ 12 50 net
Balances.
Bands.
Plated.....new list dis 50&5 %
Iron Rim.....new list dis 25&5 %
Brass (Plated list).....new list dis 50&5 %
Oroide.....
Belts.
Hand, Light Brass.....dis 65&5&10 %
" Extra Heavy.....dis 40&10 %
" White Metal.....dis 50&10 %
" Silver Chime.....dis 15&10 %
" Swiss.....dis 25 %
" Globe.....dis 15&10 %
Gong, Abbe's.....dis 15&10 %
" Yankee.....dis 30&10 %
" Barton's.....dis 33⅓ %
Crank, Taylor's.....dis 25 %
" Brook's.....dis 50 %
" Cone's.....dis 10 %
" Connell's.....dis 50&10&10 %
Lever, Sargent's.....dis 50&10&10 %
" Taylor's.....dis 25 %
" Hart, Bliven & Mead Mfg. Co.....dis 50&10 %
Pull, " " " .....dis 50&10 %
" Brook's.....dis 50 %
" Western.....dis 25 %
Cow-Common Wrought.....dis 20&10 %
" Western.....new list dis 30&10 %
" Kentucky "Star".....new list dis 20&10 %
" Dodge's Genuine Kentucky.....new list dis 35 %
" Yaw's Genuine.....dis 30 %
" Texas.....dis 30 %
Call.....
Bellows.
Blacksmiths'.....dis 20 %
Moulders'.....dis 15 %
Hand Bellows.....dis 10 %
Blind Adjusters.—Domestic.....₱ doz $3—dis 20 %
Blind Fasteners.
Mackrell's.....dis 30 %
Van Sand's.....₱ gross $14 00
Washburn's Patent.....₱ gross 14 00
Merriman's.....new list net
Blind Staples.
Boardman's Patent, ¼ in. and larger.....₱ ℔ 37 c
" ⅜ in....." " 42 c
Blocks.
Tackle, Rope and Iron Strapped, Providence Tool Co.'s list.....dis 30 %
Bolts.
Cast Iron Barrel, Shutter, &c.....new list dis 60, 10&10 %
Wrought Iron Barrel.....new list dis 50, 10&10 %
" " Square.....new list dis 50, 10&10 %
Wrought Iron Flush.....dis 15&10 %
Carriage and Tire, Common.....dis 75&10 %
" " " Norway Iron.....dis 50&10 %
Star, Philadelphia.....dis 50 @ 50&10 %
Eagle, Philadelphia.....dis 50 @ 50&10 %
Carriage and Tire, R. B. & W.....old list dis 50&10 %
Plow, R. B. & W.....dis 30 %
Stove, R. B. & W.....dis 20 %
" Shelton Co. Shaved Heads.....dis 20 %
Union Nut Co., old list.....dis 50&2&5 %
" " Stove.....dis 15 %
Machine.....dis 40 @ 45 %
Borax......13c. ₱ ℔
Boring Machines.
Kellogg's.....dis 15 %
Snell Mfg. Co., Rice's Patent.....dis 20 %
" " Regular.....dis 30 %
Douglas Mfg. Co.....dis 20&10 %
Mortising Machines each.....$18 00
Bow Pins.—Union Nut Co., new list.....dis 50&10&5 %
Braces.
Barber's Patent.....dis 40&5 %
Q. S. Backus.....dis 40&10 %
Wilson Mfg. Co.....new list dis 10 %
Spofford's Patent.....dis 40&5 %
Noble's Patent.....dis 40&5 %
Bartholomew's American Ball.....dis 10&10 %
" Patent Grip.....dis 40 %
Ives' Novelty.....dis 40&5 %
" Hamden.....dis 15&10 %
Common Ball.....dis 15&10 %
Brackets.—Shelf.....dis 60&10 %
Bull Rings.—Union Nut Co., new list.dis 50&10&5 %
Bung Hole Borers.
Common and Ring.....dis 25 %
Ives' Tap Borers.....dis 25 %
Butchers' Cleavers.
Humason & Beckley Mfg. Co.....dis 20&10 %
Bradley's.....dis 25 %
Beatty's.....new list dis 20 %

2	3	4	5	6	7	8	9
$19·00	$21·50	$24·00	$27·00	$30·00	$33·50	$36·50	$40·00

Hart Mfg. Co.....dis 45&10 %

0	1	2	3	4	5	6
$25·25	$29·75	$30·25	$38·75	$43·55	$43·50	$54·00

Butts.
Wrought Brass.....dis 30 %
Cast Fast Joint, Narrow.....dis 40 @ 50&5 %
" " Broad.....dis 50&10 %
Cast Loose Joint, Narrow.....dis 55&10 %
" " Broad.....dis 60&10 %
" " Mayer.....dis 50 %
" " Parliament.....dis 50 %
Drilled Wire Jointed—
Narrow, High List.....dis 55&10 %
Broad.....dis 50&10 %
Loose Joint.....dis 60&10 %
Loose Pin.....dis 5&10&10 %
Wrought Fast Joint, Narrow.....dis 30&10 %
Wrought Broad.....dis 35&10 %
" Loose Joint.....dis 35&10 %
Wrought Table and Back Flaps.....dis 3&10 %
Lull & Porter's Blind Butts.....dis 10 %
Palmer Blind Butts.....dis 30&10 %
Nicholson Blind Butts.....dis 40&10 %
Parker's Blind Butts.....dis 55&10 %
Huffer's Blind Butts.....dis 33⅓&10 %
Clark's Surface Blind Hinges, Nos. 1, 3 and 5...dis 5&10 %
" " " " No. 40 and 50.....dis 50&5 %
" " " " No. 20.....dis 6&10 %
" Mortise " " 2, 4, 4½, 6, 8, 10....dis 33⅓ %
Seymour's.....dis 50&5 %
Shepard's.....dis 50&5 %
Garretson's...No. 1, dis 50&10 %; Nos. 2 and 7, dis 50&5 %
The American Spiral Spring Butt Co.....dis 20 %
Standard.....dis 50&5 %
Caps—Percussion, per 1000.
G. D.....37 @ 40c
Lily's E. B.....1-4s, 55c.; 1-10s, 65c., gold
" Double Waterproof, 1-4s, $1·45; 1-10s, $1·52½c., gold
Colt's.....1-10s 70c., gold
Carpet Sweepers.
Union.....each $2 75 net
Welcome.....each 2 75 net
Cartridges.
Metallic.....dis 50&10 %
Cards.—Horse and Curry.....dis 30&10 %
Cotton.....dis 10&10 %
Wool.....dis 15&10 %
Carpet Stretchers.
S. & W.....per doz $2 00; dis 40&5 %
Sargent's.....per doz $4·88—dis 50&10&10 %
Casters.
Bed.....dis 30&10 %
Plate.....dis 40&10 %
Cattle Leaders.....new list dis 60&10 %
Chain
English Coil.....net gold

℔	.13	9/16	8/16	8/16	8	7/16
	8-16	¼	5-16	⅜	7-16	½

Trace, 6½-10-2.....by the cask, ₱ pair, gold 57c
Trace, 7-10-2.....by the cask, ₱ pair, gold, 62c
Galvanized Pump Chain.....₱ ℔ 13c
German Halter Chain.....new list, Jan. 1, dis 20 %
German Coil.....new list, Jan. 1, dis 20 %
Jack Chain, Iron.....dis 50 %
" Brass.....dis 40 %
Chalk.
White.....₱ gross, 50c
Red.....₱ gross, 75c
Blue.....₱ gross, 90c
Crayons.....₱ gross, 14c
Chisels.
Socket Framing, Douglass.....dis 60&10 %
" " Crossman.....dis 50&5&10 %
" " Hart Mfg. Co.....dis 60&10 %
" " Merrill.....dis 60&10 %
" Firmers, Douglass.....dis 50&5&10 %
" " Crossman.....dis 60&5 %
" " Hart Mfg. Co.....dis 60 %
" " Merrill.....dis 60&10 %
Socket Corner.....dis 60&10 %
Tanged Firmer.....dis 45&10 %
Butcher's.....$5·50 to £ gold—new list
Newbould's.....$5·50 to £ gold
Spear & Jackson's.....$5·50 to £ gold—new list
Clamps.
Cabinet.....dis 60&10 %
Judd's.....dis 45&10 %
Lambert's.....dis 20 %
Providence Tool Co.....dis 10 %
Clips, Axle.
Norway or Best.....dis 30 %
Superior.....dis 50 %
"Star," Superior Philadelphia.....dis 45&5 %
Coal Shovels.
Iron Handled.....₱ doz, $ 85 @ 1 25
Wooden Handled.....₱ doz, 1 00 @ 2 00
Coal Hods.—Smith, Burns & Co.....dis 15 @ 25 %

	14	15	16	17	18	incn.
Japanned	$6·00	6·35	6·75	7·50	8·00	per doz
Galvanized	9·50	10·09	10·75	11·50	12·50	"

Morning Glory Funnel Hods—

	No. 15	16	17	
Japanned	$9·00	10·50	12·00	per doz
Galvanized	13·00	14·50	16·00	"

Sidney Shepard & Co.'s new list.....dis 10 %
Cockeyes...1¼ in., 34c.; 1½ in., 38c.; 1¾ in., 43c. net
Cocks.
Brass Racking.....dis 20&10 %
Lock and Globe.....dis 2&10 %
Lever Bibbs.....dis 20&10 %
Coffee Mills.
Board and Box.....dis 15 %
Increase Wilson's.....new list dis 15 %
Selsor's Pat.....$9·50, $10·50—dis 25 %
French Steel.....dis 15 %
The Swift.....dis 25 %
Diamond, per doz $4 00.....dis 10 %
Compasses and Dividers.
Bemis.....dis 35 %
Cook's.....dis 15 %
Excelsior.....dis 30 %
Peck Stow & Wilcox.....dis 25 %
Coopers' Tools.
Bradley's.....dis 15 @ 20 %
Chas. E. Little.....dis 20 @ 25 %
Swan & Brombacher.....dis 15 @ 20 %
Corkscrews.
Corn Knives and Cutters.
Bradley's.....dis 10 %
Crow Bars.
Cast Steel.....₱ ℔ 11c. net
Iron, steel points.....₱ ℔ 6c
Crucibles.
Gautier & Co.....₱ No. 5½c
Curling Irons.—½ in., $1·80; ⅝ in., $2; ¾ in., $2·40.....dis 10 %
Curry Combs.
Hotchkiss' and Kellogg's, Iron and Brass...dis 20&10 %
Fitch's.....dis 15&10 %
Rubber.....₱ doz, $9·00—dis 15 %
The Lawrence Curry Comb Co.....dis 25 %
Curtain Pins.—Silvered Glass.....old list dis 52½ %
Cutlery.
American Table.....net list
American Pocket.....dis 25 %
Am. Pocket—Humason & Beckley Mfg. Co...dis 20&10 %
Dippers.
Britannia.....per doz 7·50—dis 30 %; by bbl. dis 33⅓ %
Cocoa, Plain.....per doz $3·25—dis 20 %
" Rimmed.....per doz 3·75—dis 20 %
Dog Collars.
Embossed Gilt.....dis 20 %
Leather.....dis 20 %
Brass.....dis 25 %
Door Springs.
Gray's.....$7·50 ₱ doz—dis 50&10 %
Torrey's Patent.....$7·50 ₱ doz—dis 50&10 %
Palmer's Japanned No. 6.....₱ doz $5·00} dis 20 %
" Coppered " " 6·00}
" Silvered " " 8·00}
Challenge.—
Japanned.....₱ doz $4 00 @ 6 00}
Bronzed.....₱ doz 5 00 @ 7 00} dis 25 %
Nickel Plated.....₱ doz 6 50 @ 9 00}
Gem.—No. 1 large, Japanned.....per doz $4·00
No. 2 medium.....per doz 3·50
No. 3 small.....per doz 3·00
In Gross Lots.....dis 10 %
Drawing Knives.
Crossman's No. 1.....dis 50&5&10 %
Douglass.....dis 60&10 %
Hart Mfg. Co., No. 1.....dis 60 %
Merrill.....dis 60&10 %
Bradley's.....dis 25 %
Adjustable Handle.....dis 15 %
Drills.
Ingersoll's Ratchet.....dis 25 %
Moore's Triple Acting Ratchet.....dis 20 %
Whitney's Ratchet.....dis 20 %
Blacksmiths'.....each $2 50 net
Drill Chucks.—The Danbury...each 10·00, dis 25 @ 30 %
Drug Mills.
American Drug Mills (Enterprise Mfg. Co.).....dis 20 %
Egg Beaters.
Monroe's.....8 in. 10 in.
Per doz $8·00 9·00.....dis 10 %
Dover.....₱ doz net $6·00
National.....₱ doz $4·50—dis 20 %
Peerless.....₱ doz $4·00—dis 10 %
Emery.
Genuine Chester—Regular Nos.....₱ ℔ 7c}
" Flour and FF.....₱ ℔ 4c} dis 10 %
Washington Mills—Regular Nos.....₱ ℔ 8c
" Flour.....₱ ℔ 5c
Enameled and Tinned Ware.
Kettles.....dis 35 %
Sauce Pans.....dis 25 %
Glue Kettles.....dis 20 %
Tinned Saucepans.....dis 25 %
Escutcheons.
Brass Thread.....dis 60&10 %
Wood.....dis 25 %
Faucets.
Cork Lined, Wood.....dis 60&10 %
Fenn's.....dis 50 %
" Cork Stops.....dis 40 %
Star.....dis 55&10 %
Frary's Patent Petroleum.....dis 15&10 %
Taylor's Pattern " .....dis 20&10 %
Wood and Metallic.....dis 40 %
Felloe Plates......₱ ℔ 14c; dis 10 %
Files.
American File Co.....$5 00 to £ currency—dis 10 %
Nicholson.....$5 00 to £ currency—dis 12½ %
Hartford File Co.....$5 50 to £ currency—dis 10 %
Newbould's.....5 25 to £ gold
Rothery's.....$5 to £ currency
J. & Riley Carr's Files and Rasps.....5 50 to £ gold
Stubs'.....8 50 @ 9 00 to £ gold
Butcher's.....5 50 to £ gold
Walter Spencer & Co.'s "Diamond".....5 25 to £ gold
Spear & Jackson's.....5 00 to £ gold
Jowitt's.....5 25 to £ gold
"Western".....5 00 to £ net
W. K. & C. Peace's "Imperial".....5 50 to £ gold
R. Ibbotson.....5 00 to £ gold
Fisher's.....4 75 to £ gold
Goodlad's.....4 00 to £ gold
Moss & Gamble.....5 25 @ 5 50 to £ gold
Thos. Turner & Co. (Peter A. Frasse & Co.)...5 00 to £ gold
" Horse Rasps.....5 50 to £ gold
"Philo Sheffield," P. T. Co.....5 00 to £ gold
Fluting Machines.
Mrs. Coles, 7 inch rolls.....6 50
" " 5 " 5 50
Knox, with 4-inch Rolls.....4 40 each net
" " 6 " .....5 25 each net
O. K.....6 50 each net
Peerless, 4-inch Rolls.....4 00 each net
" 5 " " .....4 75 each net
Excelsior, No. 1.....4 75 each net
" No. 2.....6 50 each net
Diamond.....7 50 each net
Climax 7-inch Rolls.....8 00 each net
" 4½ " .....6 50 each net
Empire.....4 00 each net
Eureka, No. 1, 7-inch Roll.....8 00 each net
" No. 2, 5-inch Roll.....6 00 each net
K. F. M., 4½-inch Roll.....5 50 each dis 15 %
" 6-inch Roll.....6 00 each dis 15 %
Myers Fashion Fluter, 4½-inch Rolls.....3 00 each net
" Convex Brass Fluter, Sad Iron attachment..$1·75
Domestic Fluter.....$1·75 each net
Fairy, Self-Heater.....8 00 each net
Genevra Hand Fluter.....$15 00 per doz net
Champion, 6 inch rolls.....$6 00 each dis 10 %
" 4 inch rolls.....$5 00 each dis 10 %
Fluting Scissors......dis 25&10 %
Forges.
Keystone Portable Forge Co.'s.....dis 20 %
"Empire" (W. P. Kellogg & Co.).....dis 30 %
Forks.
Hay, Manure & Spading.....dis 30 %
Plated A 1.....dis 40, 10&5 %
Fry Pans.—P. S. & W.
Tinned.....dis 30 %

₱ doz.	$3·00	3·25	3·62	4·00	4·50	5·00	5·50	6·00	7·50
No.	0	1	2	3	4	5	6	7	8

Smith, Burns & Co., "Excelsior" Polished.....dis 35 %

₱ doz	$3·70	4·00	4·70	5·30	6·00	7·00	8·00	9·00
No.	1	2	3	5	6	7	8	

Gas Stoves.
Tiffs & Howard.....dis 20 %
Gauges.
Marking.....dis 4&10 %
Wire.....dis 10 %
Gimlets.—Metal and Wood Head.....dis 25&10 %
Grind Stones.—J. F. Green & Bro.....dis 20 %
Grind Stone Fixtures.....dis 50&10 %
Hammers.
Emmet Hammer Co.....dis 25 %
Humason & Beckley Mfg. Co.....dis 16⅔&10 %
Maydole's, new list.....dis 5 %
Cheney's.....new list net
Verree.....dis 5 %
Yerks & Plumb.....dis 12½ %
Magnetic Tack.....dis 20&10 %
Warner's.....list net
Hand Cuffs and Leg Irons.
Towel's.....dis 25 %
Providence Tool Co.'s Hand Cuffs $15 per doz} dis 10 %
" " Leg Irons.... 25 " }
Handles.
Wrought Chest.....dis 60&10 %
Flush Chest.....dis 60&10 %
Lifting.....dis 50&10 %
Coffin.....dis 20&10 %
Saw and Plane.....dis 10 %
Hammer and Hatchet.....dis 10 %
Greensboro', Axe, Pick, Hammer, &c.....dis 10 %
Woolworth Axe, Pick and Sledge.....dis 10 %
Brad Awl.....per gross $3 50—dis 20&10 %
Hickory Firmer Chisel, ass'td " 5 25—dis 10&10 %
" " " large " 6 25—dis 10&10 %
Apple " " ass'td " 6 00—dis 10&10 %
" " " large " 7 00—dis 10&10 %
Socket " " ass'td " 3 50—dis 10&10 %
" Framing " " " 6 00—dis 10&10 %
File " " " 3 50—dis 10&10 %
Auger " " " 5 50—dis 10&10 %
" large " 6 50—dis 10&10 %
Hangers.
Barn Door.....dis 65&10 %
" Anti-Friction" (Rider, Wooster & Co.).....dis 30 %
Novelty.....dis 30 %
Harness Snaps.
Henshaw's.....dis 25&10 %
Judd's.....dis 40 %
Fitch's.....dis 30 %
Hotchkiss'.....dis 10 %
Andrews'.....dis 25 %
Sargent's.....dis 50&10 %
New York Wire.....dis 20&20 %
Hatchets.—Isaiah Blood.....dis 10 %
Shingling, Nos. 1 2 3.....₱ doz $7 50 8 00 8 50
Claw, " 1 2 3.....₱ doz 8 50 9 00 9 50
Lathing, " 1 2 3.....₱ doz 7 50 8 00 8 50
Hunt's.....dis 10 %
Shingling, Nos. 1 2 3.....₱ doz $7 25 8 00 8 75
Claw, " 1 2 3.....₱ doz 7 75 8 50 9 25
Lathing, " 1 2 3.....₱ doz 7 50 8 25 9 00
Hurd's.....dis 20 %
Shingling, Nos. 1 2 3.....₱ doz $8 00 8 50 9 00
Claw, " 1 2 3.....₱ doz 9 00 9 50 10 00
Lathing, " 1 2 3.....₱ doz 8 00 8 50 9 00
Newark's Edge Tool Co.'s.....dis 25 %
Shingling, Nos. 1 2 3.....₱ doz $6 50 7 00 7 50
Claw, " 1 2 3.....₱ doz 7 25 7 75 8 25
Lathing, " 1 2 3.....₱ doz 6 50 7 00 7 50
Yerkes & Plumb.....dis 12½ %
Shingling, Nos. 1 2 3.....₱ doz $7 00 7 50 8 00
Claw, " 1 2 3.....₱ doz 7 50 8 00 8 50
Lathing, " 1 2 3.....₱ doz 7 00 7 50 8 00
Simmon's.....dis 15 %
Shingling, Nos. 0 1 2 3...₱ doz $7 50 8 00 9 00
Claw, " 1 2 3...₱ doz 9 00 9 50 10 00
Lathing, " 1 2 3...₱ doz 8 00 8 50 9 00
Broad, " 4 5 6...₱ doz 9 00 10 00 12 00
" " 7 8...₱ doz 14 00 16 00 18 00
" " " " 20 00 22 00
Elephant.....dis 25 %
Shingling, Nos. 1 2 3.....₱ doz $8 00 8 50 9 00
Claw, " 1 2 3.....₱ doz 9 00 9 50 10 00
Lathing, " 1 2 3.....₱ doz 8 00 8 50 9 00
J. P. Verree & Co.....dis 5 %
Shingling, Nos. 1 2 3.....₱ doz $7 00 7 50 8 00
Claw, " 1 2 3.....₱ doz 7 50 8 00 8 50
Lathing, " 1 2 3.....₱ doz 7 00 7 50 8 00
Underhill's.....dis 10 %
Shingling, Nos. 1 2 3.....₱ doz 7 25 8 00 8 75
Claw, " 1 2 3.....₱ doz 7 75 8 50 9 25
Lathing, " 1 2 3.....₱ doz 12 00 11 00 13 00
Hinges.
Gate, Western.....₱ doz $6·25—dis 60&10 %
" N. E.....₱ doz 11·25—dis 6 &10&10 %
" N. Y. State.....₱ doz 7·20—dis 60&10 %
Rolled Plate.....dis 75 %
" Raised.....dis 35 @ 10 %
Wrought Strap and T.....dis 35 @ 10 %
Providence Plate. {5 and 8 in. 11c ₱ ℔ {.... dis 25 @ 30 %
{over 8 in. 9½c ₱ ℔ {
Screw Hook and Strap.....{8, 10, 12 in. 7c} ....net
{14 to 36 in. 6c}
Heavy Welded Hook.....{8 to 12 in., 6¾c} ....net
{14 in & up, 6c}
{¾ to 1 in., 9¼c}
Screw Hook and Eye.....{⅝ in. 10¼c} .... net
{½ in. 12¼c}
Hoes.
Solid Shank, C. S.....₱ doz $8 00—dis 30 %
Socket.....₱ doz 9 00—dis 30 %
Riveted Eye.....₱ doz 5 00—dis 30 %
Grub.....dis 25 %
Planters'—Winsted.....add 10 %
Scovill.....add 33⅓ %
Scovill Pattern (Winsted).....add 20 %
Hooks.
Harness.....dis 60 10&5 %
Bird Cage.....dis 70&10 %
Cotton.....dis 50 %
Belt.....dis 50&10 %
Clothes Line.....dis 60&10&10 %
Bench—Skinner's.....per doz $8 00, dis 30&10 %
Bench—Hotchkiss' $5 00 ₱ doz.....dis 10 %
Bench—Weston's No. 1, $8·00; No. 2, $7·00 per doz net
" —McGill's.....$3 00 per doz, dis 10 %
Wardrobe, Japanned.....new list dis 60, 10&5 %
Hat and Coat " .....new list dis 60, 10&5 %
Wrought Staples and Hooks and Staples.....dis 70&10 %
Screw Hooks and Eyes.....dis 70, 10&10 %
Grass.....dis 2 %
Whiffletree—Patent.....dis 30 %
Hooks and Eyes—Malleable Iron.....dis 55 %
" Brass.....dis 55 %
Horse Nails.
Putnam's.

No.	5	6	7	8	9	10
	32c	28c	26c	25c	24c	23c

In lots 2000 lbs. dis 5 %.
Ausable Horse Nail Co.

No.	5	6	7	8	9	10
Ausable	30c	27c	25c	24c	23c	22c
Pointed and Polished	31c	28c	26c	25c	24c	23c
Pointed and Blued	32c	29c	27c	26c	25c	24c

In lots of 1000 lbs., 5% discount.
Brundage.

No.	5	6	7	8	9	10
	29c	26c	24c	23c	22c	21c

In lots of 500 lbs., dis. 5 %.
American Pressed.

No.	5	6	7	8	10	30c
	22c	20c	20c	20c	20c	

In lots of 1000 lbs. dis 5 %.
Perkins Finished (ready to drive).

No.	5	6	7	8	9
	31c	28c	26c	25c	24c

In lots of 1000 lbs. dis 5 %.
Buffalo Forged.

No.	6	7	8	9	10
	28c	26c	25c	24c	23c

Globe (Pointed and Polished).

No.	5	6	7	8	9	10
	31c	28c	26c	25c	24c	23c

In lots of 1000 lbs., 5 % discount.
National (Pointed and Polished).

No.	5	6	7	8	9	10
Patent Finish	28	25	23	22	21	20
Extra "	30	27	25	24	23	22

In lots of 1000 lbs., dis 5 %.
Vulcan (Blued, pointed, ready to drive).

No.	5	6	7	8	9	10
	33c	30c	28c	27c	26c	25c

In lots of 500 lbs., 5 % discount.
" 1000 lbs 7½ % discount.
" New London Horse Nails.

No.	5	6	7	8	9	10
	27c	25c	24c	23c	22c	
U B	29c	27c	26c	25c	24c	

In lots of 1000 lbs., dis 5 %.
Star Brand.....₱ ℔ 16c
Morgan.....14c
Horse Shoes.
Burden.....₱ keg, $5 85
R. I. Horse Shoe Co., Perkins Pattern.....₱ keg, 5 85
" " R. I. Pattern.....₱ keg, 6 35
Mule Shoes.....₱ keg, 6 85
Kettles.
Brass.....₱ ℔ 55c net
In lots of 500 ℔s.....₱ ℔ 50c net
Knives.
Ames' Butcher Knives.....dis 20 %
" Shoe " .....dis 15 %
" Bread " .....₱ doz $1·50—dis 15 %
Hay and Straw, "Wadsworth's".....dis 20 %
Lothrop's Cocoa Handle Lap Bolster Butcher Knives.....dis 25 %
Knobs.
Carriage.....dis 60&10 %
Base—Common.....net
" Plush Tip.....dis 10&10 %
" Elastic End, No. 8.....dis 30&10 %
Ladles.
Melting.....dis 20 %
Lanterns.
Peerless.....No. 5, per doz $11·75—dis 10&10 %
Brady's Patent.....dis 10 & 10 %
Etna.....dis 10 & 10 %
Yankee.....dis 10 & 10 %
De Beque.....dis 10 & 10 %
Lard Presses.
Draw Cut, 14 inch.....each $65 00—dis 20 %
Lemon Squeezers.
Porcelain Lined.....per doz $7 00, dis 10 %
Lines.
Linen Fish.....dis 10&10 %
Cotton Chalk.....dis 40 %
Silver Lake Chalk.....dis 10&10 %
Mason's.....dis 10&10 %
Galvanized Wire Clothes.....$1 per 100 ft. dis 30 %
Locks and Latches.
Cabinet—Eagle.....dis25 %
Cabinet—Gaylord.....dis 25 %
Langstroth & Crane.....dis 40 %
Trunk.....dis 15 %
Continental.....dis 15 %
Shepardson's.....dis 20 %
Romer's Padlocks.....dis 10 %
Scandinavian Jail.....dis 10 %
American Lock Co.....dis 33⅓ %
Plate.....dis 25 %
Pad.....dis 50&5, and 2 % for cash
Barnes & Deitz.....dis 25 %
Yale Lock Co.....dis 40 %
Sargent & Greenleaf.....dis 20 %
Trenton
Brunford.
Norwich.
Russell & Erwin.
Norwalk.
Nashua.
Mallory, Wheeler & Co.
P. & F. Corbin.
Parker & Whipple.
Jacobus & Nimick Mfg. Co.
} dis 45&5 %. 2 % extra for cash.
Mallets.
Hickory and Lignumvitæ.....dis 20 %
Meat Cutters.
Dixon's (P. S. & W.).....dis 10 %

No.	1	2	3	4
₱ doz.	$14 00	$17 00	$19 00	$30 00

Hales'.....dis 25 %

No.	11	12	13
₱ doz	$27 00	$33 00	$42 00

Miles Challenge.....dis 20 %

No.	1	2	3
₱ doz.	$22·00	$30·00	$40 00

Perry's Champion (P. S. & W.).....dis 10 %

No.	200	300	400
₱ doz.	$22 00	$27 00	$40 00

Woodruff's (P. S. & W.).....dis 10 %

No.	100	150
₱ doz.	$15 00	$18 00

American.....dis 25 @ 25&5 %

No.	1	2	2½	3	4	15	5
Each	$6·00	$9·00	$12·00	$15·00	$30·00	$60·00	$75·00

Draw Cut.....dis 20 %

No.	5	6	8
Each	$56·00	$90·00	$250 00

Molasses Gates.
Stebbins'.....dis 65&10 %
" Tinned ends.....dis 40&10 %
Bush's.....dis 20 %
Lincoln's.....dis 50&10 %
Mortars and Pestles.
Iron.....net
Nails......See Trade Report
Nail Pullers.
Capewell's Giant.....per doz $30 00 net
Nuts and Washers.
Nuts.....large, 6c; small, 8c off list.
Washers.....large, 8c; small, 10c off list.
Oil Stones.
Washita No. 1.....₱ ℔ 22c
Washita Slips.....₱ ℔ 40c
Washita No. 2.....₱ ℔ 17c
Arkansas.....₱ ℔ 1 25
Hindostan.....₱ ℔ 6c dis 20&10 %
" Slips.....₱ ℔ 10c dis 10&10 %
Oilers.
Miller's Zinc.....dis 40 %
" Brass and Copper.....dis 25 %
Olmsted's.....new list dis 25&10 %
Broughton's.....dis 25&5 %
Malleable.....per doz $5 00 dis 10 %
Common Tin.....dis 30&10 %
" Zinc.....dis 30&10 %
" Brass and Copper.....dis 30&10 %
Prior's Patent or "Paragon".....dis 30&10 %
Ox Shoes.
Concave.....₱ ℔ 13c net
Ox Balls......dis 60&10 %
Pencils
Rope's Carpenters'.....dis 30&10 %
Dixon's Lead.....₱ gross $4·50 net
" Lumber.....₱ gross 9·00 net
Picture Nails and Knobs.
Brass Head.....dis 60&10 %
Richards' Patent.....dis 40 @ 40&10 %
Judd's.....dis 60&10 %
Pinking Irons.....per doz $2 75—dis 65 %
Planes.
Auburn Tool Co.'s.....dis 30&10 %
Ensenore, Bench.....dis 50 %
Chapin's, 1st quality.....dis 20&10&10 %
Chapin's 2d quality.....dis 45&10 %
Greenfield Tool Co.....dis 25&10 %
" New York".....dis 40 %
Sandusky Tool Co., 1st quality.....dis 33 %
" " 2d " (Ogontz).....dis 50 %
Ohio Tool Co., 1st quality.....dis 40&10 %
" " 2d quality (Sciota).....dis 50 %
Owasco Tool Co., 1st quality.....dis 3&10 %
" " 2d quality.....dis 50 %
Howland's, 1st quality.....dis 30&10 %
" 2d quality (Cayugas).....dis 4&10 %
Bailey's Patent Adjustable.....dis 20&10 %
Plane Irons, Butcher's.....$5 50 to £ gold—new list
" Auburn Tool Co.'s.....dis 25 %
" Chapin's.....dis 10&10 %
" Greenfield Tool Co.....net list
" Ohio Tool Co.....dis 10 %
" Spear & Jackson's...5 50 to £ gold—new list
" Sandusky Tool Co.....dis 10 %
Plow Bits, Greenfield Tool Co.....dis 10 %
Pliers.
Button's Patent.....dis 33⅓ %
Plumbs and Levels.
Chapin's.....dis 66⅔&10 %
Standard Rule Co.'s New Adjustable.....dis 60&10&10 %
Standard Rule Co.'s Non-adjusteble.....dis 60&10&10 %
Stanley R. & L. Co.'s Pat. Adjustable.....dis 6 &10 %
" " Non-Adjustable.....dis 60&10&10 %
Pocket Levels.....dis 50&10 %
Johnson's Patent Adjustable.....dis 60&10 %
Pulleys.
Hat House and Tackle.....dis 60&10 %
Jap'd Screw.....dis 60&10 %
Brass Screw.....

Galvanized Telegraph. Nos. 10 and 11...₩ ℔ 10½c @ 11½c
" " 12.....₩ ℔ 10½c @ 11½c
Annealed Fence. Nos. 8 and 9.....dis 40 @ 45 %
" Grape, " 10 to 14.....dis 40 @ 45 %
Fence Staples.....₩ ℔ 8 @ 8½ %
Stubs' Steel Wire.....$7 00 to £ gold
Judd's Picture Wire.....dis 50 %

Wrenches.

American Adjustable.....dis 45 %
Baxter's Adjustable "S".....dis 20 %
" Diagonal.....dis 20 %
Collins & Co.'s.....dis 45 %
Coes' Genuine.....dis 40&5 %
" Pattern (Wrought).....dis 50 %
" " (Malleable).....dis 60&10 %
Lindsay's Patent.....dis 25 %
Taft's Pattern.....dis 70 %
Davis' Patent Duplex.....new list dis 25 %
Bemis & Call's Patent Combination.....dis 20&5 %

Wringers.

Providence.....₩ doz $60 00
Reliance.....₩ doz 57 00
Universal—Extra.....₩ doz 60 00
Novelty.....₩ doz 60 00
Sherman.....₩ doz 60 00
Monitor.....₩ doz 60 00
King.....℔ doz 60 00
Crown.....℔ doz 60 00
Eureka.....₩ doz 60 00
Independent.....₩ doz 60 00

TIN WARE AND TRIMMINGS.

STAMPED TIN WARE, dis 10 %.
COMMON STAMPED WARE, &c.

Bucket Covers.

Quarts	½	1	2	3	4
Inch	4½	5 3-16	6 5-16	6¼	7 11-16
P r gross	$2 00	2 60	3 40	4 25	5 75
Quarts	6	8	10	12	
Inch	8⅝	9¼	9¼	10 9-16	
Per gross	$7 00	8 00	8 50	11 50	

Cake Box Covers.

	Small.	Medium.	Large.
Inch	11½	12¼	13½
Per gross	$15 00	18 00	22 00

Pot Covers.

Inch	7¾	8¼	8¾	9¼	9¾	10¼
Per gross	$5 75	6 00	6 25	6 75	7 25	8 25
Inch	10¾	11¼	11¾	12¼	12¾	13¼
Per gross	$8 75	9 50	10 00	13 00	13 75	16 50

Pie, Dinner or Scolloped Plates.

Inch	6	7	8	9	10 11
Per gross	$4 00	5 00	6 00	6 50	8 50 10 50

Deep Pie Plates.

Inch	9	10
Per gross	$8 50	10 50

Jelly Cake Pans.

Inch	9	10
Per gross	$7 50	10 00

Coffee Pot Covers.

Plain	1¼	2	3	4	5	6 qts.
Inch	3	3¼	3½	4¼	5	
P e gross	$1 15	1 40	1 60	2 00	2 75	3 00
Rimmed	2¾	3	3¼	4	4½	inches.
Per gross	$2 25	2 50	3 00	3 50	4 00	

T. K. Breasts only.

Inch	7½	8	8½	9	9½	10	10½	11 11½
Per gro.	$6 00	6 50	6 75	7 25	7 75	9 50	10 00	12 00 13 00

Grater Plates.

Sheet	¼	1
Per gross	$3 00	6 00 11 50

Scolloped Cake Pans.

	Small.	Large.
Without Tubes	per gross, $8 00	11 50
With Tubes	" 10 50	14 00

Stamped Square Pans.

No	½	1
Per gross	$7 50	14 50

Common Square Pans (One Sheet).

Per gross	$12 50

Milk Skimmers (Plain or Pierced).

Per gross	$4 00

Lettered Plates.

Inch	5½	6
Per gross	$3 25	4 00

Steamer Bottoms.

Add $1 per gross, or 10c. per doz. to list of Pot Covers.

Tin Stove Pipe Rings.

Inch	4	4½	5	5½	6	7
Plain	per gro. $4 50	5 00	5 50	6 00	6 50	7 50
Jap'd or Burn'd	" 6 00	6 50	7 00	8 00	8 50	10 00

Coffee Boiler Lips.

	Small.	Large.
To Rivet	per gross, $0 80	1 10
To Solder	" 1 25	

Plain Stamped Water Dippers,

	½ pint.	Pint.	Quart.	2 quarts.	2½ quarts.
Per doz	90	1 15	1 50	1 85	2 50

RETINNED WARE, dis 25 %.

Retinned Milk Pans.

Qts	½	1	1½	2	3½	4	5	6	8	10	12
₩ doz	1 20	1 50	1 75	2 00	2 25	2 75	3 15	3 50	3 85	4 15	5 25 5 75

Dipper Bowls, Plain Stamped.....dis 20 @ 25 %

Pints	½	1	Quarts	1	2	2½
Per doz	50	75	Per doz	1 00	1 25	1 75

Dipper Bowls, Retinned.....dis 20 @ 25 %

Pints	½	¾	1	Quarts	1	2 2½
Per doz	75	90	1 05	Per doz	1 40	1 75 2 25

Pans.

Dish Pans, Tinned.....dis 20 @ 25 %

Quarts	7	8	10	14	17	21	30
Per doz	8 50	9 50	11 00	13 00	16 00	19 00	30 00

JAPANNED TIN WARE.

Canisters, Common					dis 10 %
Pound	½	1	2	3	
Per doz	$1 10	1 60	2 50	3 25	
Canisters, Hinged					dis 10 %
Pound	1	2			
Per doz	$1 75	2 75	3 40	3 75	4 50
Candlesticks, Japanned					dis 10 %
No			1		2
Per gross			$5 00		7 00
Cake Boxes, Round			per nest, $2 25,		dis 10 %
" Scour			per nest, 4 25,		dis 10 %
Chamber Pails, Japanned (Smith, Burns & Co.)					dis 10 %
Nos	2	3	4		
Green, per doz	$8 00	9 00	10 50	12 50	
Oak "	$9 50	10 50	12 00	13 50	
Dust Pans, Corrugated		per gross, $22 00,			dis 10 %
Box Graters		per gross, $4 00,			dis 10 %
Molasses Cups					dis 10 %
Pint	½	1	1	2	
Per doz	$1 25	50	2 75		
Lunch Boxes, per doz	7 in $2 00; 8 in. $2 50;				dis 10 %
Pepper Boxes Japanned					dis 10 %
Per gross	Small, $3 00; Large, $4 00				
Toy Banks, House					dis 0 %
Tea Trays, American Tea Tray Co					dis 15 %
No			1		2
Per gross			$7 00		5 50
Toy Banks Gothic					dis 10 %
No			1		2
Per gross					$5 50
Toy Cups, Straight					dis 10 %
No			1	2	3
Per gross			$4 00	3 50	3 50
Toy Cups, Flaring...No. 1, $4 25; 2, $3 70 ₩ gross,					dis 10 %
Toy Pails, Covered					dis 10 %
No					1
Per gross					$4 50
Toy Rattles		per gross, $2 25,			dis 10 %
Trunks, Wire Handled	per nest (5) $1 50,				dis 10 %
Spittoons, Tin	per gross, No. 2, $30, No. 3, $27,				dis 10 %

PLANISHED TIN WARE.

Planished Coffee Pots, Round							dis 25 @ 30 %	
Each	60	75	85	95	1 15	1 25	1 30	1 40
Pints	1	2	3	4	5	6	7	8
Planished Tea Pots, Round							dis 25 @ 30 %	
Each			70	80	95	1 05	1 15	1 25
Pints			2	3	4	5		6
Planished Tea Pots, Oval							dis 25 @ 30 %	
Each	70	80	90	1 05	1 15	1 40	1 75	
Pints	1	2	3	4	5	6		
Planished Pepper Boxes, No. 1						per doz.,	$1 52	
Planished Flour Dredges, No. 3, $2 10; 4, 2 45 ₩ dozen.								
Planished Round Coffee Biggins							dis 25 %	
Pints	2	3	4	5	6	8		
Each	$1 00	1 10	1 20	1 40	1 60	2 00		
Planished Oval Coffee Biggins							dis 25 %	
Pints	2	3	4	5	6	8		
Each	$1 15	1 25	1 40	1 60	1 80	2 25		
Planished Oval Chafing Dishes, Imperial Covers							dis 25 %	
Inch	10	12	14	16	18	20	22	24
Each	$3 85	5 00	6 25	7 60	9 00	11 50	15 00	16 50
Planished Oval Chafing Dishes, Low Covers							dis 25 %	
Inch	10	12	14	16	18	20		
Each	$3 25	4 25	5 20	6 20	7 80	9 25		
Planished Low Dish Covers							dis 25 %	
Inch	10	11	12	14	16	18	20	
Each	70	80	1 00	1 25	1 40	2 00	2 75	
Planished Imperial Dish Covers							dis 25 %	
Inch	10	11	12	14	16	18	20	22 24
Each	$1 55	1 70	2 00	2 60	3 15	3 45	4 60	5 45 6 30
Planished Etnas, on Stands							dis 25 %	
Pints	1½	2	3	4	5			
Each	$0 90	1 00	1 20	1 50	1 75			
Planished Liquor Mixers							dis 25 %	
Nos				0	1	2		
Per doz				$2 00	2 10	2 45		
Planished Oval Melon Molds							dis 25 %	
Nos	2	3	4	5	6	7	8	9
Each	60	65	70	80	90	1 00	1 15	1 35
Planished Oval Tumbler Warmers							dis 25 %	
To fit 1, 2, 3, and 4 O. G. Urns							each,	$2 50
Planished Oval O. G. Urns							dis 25%	
Nos	0	1	2	3	4	5	6	7 8
Each	4 90	5 45	6 30	7 00	7 75	9 25	11 25	12 50 15 50
Planished Round Urns							dis 25 %	
Nos	0	1	2	3	4	5	6	7
Each	4 20	4 85	5 45	6 20	7 75	9 00	11 00	14 25
Planished Round Oyster Dishes, (Complete)							dis 25 %	
Nos						1		2
Each						$2 10		2 80
Planished Oyster Dish Plates							dis 25 %	
Nos						1		2
Each						$0 25		0 30
Oyster Dish Covers							dis 25 %	
Nos								2
Each						$0 30		0 35

Tea Pot Handles—P. S. & W.....dis 20 %

Stow's Patent Hollow Tea Pot Handles.

No. 1, Small 4¼ inches.....per gross, $11 50
No. 2, Medium, 5⅛ " " 12 50
No. 3, Large, 6⅛ " " 13 50
No. 4, Ex. Large 7¼ in., for Wash Pitchers &c.....each 18 00

Stow's Patent. New Pattern.

No. 25, Small, 4¼ inches.....per gross, $11 50
No. 35, Medium, 5⅛ " " 12 00
No. 45, Large, 6⅛ " " 13 00

Solid Iron. Tin Tipped.

No. 10, Small, 4¼ inches.....per gross, $9 00
No. 15, Medium, 5⅛ " " 9 50
No. 20, Large, 6⅛ " " 10 75

Stow's Patent Hollow Tea Pot Handles, Adamantine Bronze—P. S. & W.

No. 12, Bronzed and Tin-Tipped.....per gross, $13 50

Saucepan Handles. Of Best Malleable Iron.
P. S. & W.....dis 20 %

Japanned.

No. 1, 5½ inches long	per gross,	$3 50
No. 2, 6 "	"	3 75
No. 3, 6¼ "	"	4 00
No. 4, 7¼ "	"	4 25
No. 5, 8 "	"	4 50
No. 6, 9 "	"	4 75

Tinned.

No. 1, 5½ inches long	per gross,	$4 25
No. 2, 6 "	"	4 50
No. 3, 6¼ "	"	4 75
No. 4, 7¼ "	"	5 25
No. 5, 8 "	"	5 50
No. 6, 9 "	"	5 75
Japanned	per lb.,	16
Tinned	"	20

Iron Kettle Ears (P., S. & W.).....dis 45 %
Half gross pairs in a package.

Tinned.

Nos	1	2	3	4	5	6	7	8
Per gross pairs	88c	$1 00	1 50	1 75	2 10	2 75	3 50	4 75

Black.

Nos	1	2	3	4	5	6	7	8
Per gross pairs	75c	88c	$1 25	1 50	1 75	2 25	2 75	4 00

Tinned Tea Kettle.

Nos	4	5	6
Per gross pairs	$1 75	2 10	2 75

Extra Heavy Tinned Kettle Ears—French Pattern.

Nos	1	2	3	4	5	6	7
Per gross pairs	$1 00	1 25	1 50	1 75	2 25	2 75	3 50

Malleable Iron Kettle Ears for Coal Hods, &c.
P., S. & W.....dis 20 %

No. 10 Small	₩ ℔,	Tinned, 30c;	Black, 16c
No. 20 Medium	₩ ℔,	" 30c;	" 16c
No. 30 Large	₩ ℔,	" 30c;	" 16c
No. 40 Extra Large	₩ ℔,	" 30c;	" 16c

In cases of 100 lbs. each.

Milk Can or Boiler Handles—(P. S. & W.) 4¼ in..dis 25
Plain, 8c.; Japn'd, 9c.; Tinned, 16c. per lb.; Malleable Clips or Ears to match, Tinned.....20c per lb.
Toilet Ware Handles—4½ inches (P. S. & W.).....dis 35 %
Plain with drilled holes, per lb.....9c
Plain with Cast " " 8c
Plumbers' Scrapers—(P. S. & W.).....dis 25 %
Extra quality, length 6 in., per doz.....$1 00

METALS.

IRON.—DUTY Bars, 1 to 1¼ cents per lb., Sheet, Band, Hoop and Scroll, 1¼ to 1¾ cents per lb. Provided, that none of the above Iron shall pay a less rate of duty than 35 per cent. Pig, $7 per ton; Polished Sheets, 3 cents per lb.; Wrought Scrap, $8 per ton; Cast Scrap, $6 per ton. All subject to a reduction of 10 per cent. Railroad, 70 cents per 100 lbs. Boiler and Plate, 1½ cents per lb.

Pig Iron—AMERICAN.

Foundry No. 1	₩ ton,	$27 00 @
Foundry No. 2	"	25 00 @ 26 00
Gray Forge	"	22 00 @ 24 00
White and Mottled	"	

SCOTCH.

Coltness	"	41 00 @ 42 00
Glengarnock	"	39 00 @ 40 00
Eglinton	"	37 00
Summerlee	"	

Bar Iron.

Ain. Kenned, at mill.....nominal.....₩ ℔ 2·8c

Rails.

Welsh, gold.....₩ ton, 48 00 @ 50 00
American, at works, currency....." 50 00 @ 55 00
Old Rails, currency....." 28 50 @ 30 00

Scrap.

Wrought Scrap....." "

Bar Iron from Store.

Common Iron.

⅜ to 2 in. round and square	₩ ton,	$ 65 00
⅜x9-16 in " "	"	70 00
½ in. " "	"	72 50
⅝ to 3 in. "	"	70 00
1 to 6 in. wide x ⅜ and 1 in. thick	"	65 00
1¼ to 6 in wide x ½ & 5-16 in. thick	"	70 00
1 and 1¼ in. x ½ and 5-16	"	72 50

Swedish Iron.

1¼x⅜ to ⅝	"	140 00
1¾ to 5x⅜ to ⅞ and ⅝ to 1¼ in. square	"	125 00
6 to 7x⅜ and ⅝	"	145 00

Tinned Iron.

⅜ to 2 in. round and square	"	67 50
1 to 6 in. wide x ⅜ to 1 thick	"	67 50
1¼ to 6 in. wide x ½ and 5-16 thick	"	72 50
1 and 1¼ x ½ and 5-16	"	72 50

Large Rounds.

2¼ to 2⅞, round and square	"	77 50
3, 3¼ and 3½ in	"	82 50
3¾ and 4 in	"	90 00
Rods—⅜ and 11-16, round and square	"	70 00
½ and 9-16, " "	"	72 50
7-16, " "	"	80 00
⅝, " "	"	85 00
5-16, " "	"	90 00
¼, " "	"	95 00
3-16, " "	"	127 50

Sheet Iron.

	Common American and English.	R. G. American.	R. G. English.
Nos. 10 to 20	₩ ℔ 4½ @ 4¾c	5½c	5¾c
21 to 24	" 4¾ @ 5c	6c	6c
25 to 26	" 5c	6c	6c
27	" 5½c	6c	6½c
28	" 5¾c	6c	6¾c

Galvanized, 1 to 20, prime, ₩ ℔ 10; 2d quality...₩ ℔ 9c
" 21 to 24 " " 11 " " 10c
" 25 to 26 " " 12 " " 11c
" 27 " " 13 " " 12c
" 28 " " 14 " " 13c

Patent Polished.....₩ ℔ 15c
Russia, Nos. 8 to 16.....' 17c
" Stained, No. 1....." 16c
Belgian....." 12c

One piece Corrugated Sheet Iron Elbows.

CHARCOAL IRON

4½	5	5½	6	7 inch.
$2 50	3 50	4 50	5 25	6 50 per doz.

RUSSIA IRON.

4½	5	5½	6 7 inch.
$5 00	7 00	9 50	12 00 14 00 per doz.

BABBITT METAL.

Excelsior				cash, dis 10 %
No	1	2		Extra.
	10c	12c	15c	20c @ 25c

COPPER—DUTY: Pig, Bar and Ingot, 5c.; old copper, 4 cents ₩ ℔; Manufactured (including all articles of which copper is a component of chief value) 45 % ad valorem. All subject to a reduction of 10 per cent.

American Ingot.....₩ ℔ 21½c
English " "

SHEATHING, BRAZIERS COPPER, BOLTS, &c.

Braziers Copper, ordinary sizes, over 16 oz., per square foot.....32c ₩ ℔
Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz., per square foot.....35c. "
Braziers' Copper, 12 oz. per square foot and lighter.32c. "
Circles less than 24 inch in diameter.....35c ₩ ℔
Circles, 24 inch diameter and over.....32c. "
Segment and Pattern Sheets.....35c. "
Locomotive Fire Box Sheets.....32c. "
Sheathing Copper, over 12 oz. per sq. ft.....31c. "
" 12 oz. ₩ sq. ft. and lighter...30c. "
Bolt Copper.....32c. "
Copper Bottoms.32 @ 35c. ₩ ℔.....net
No Copper in Sheathing except 14x48 inches, and not to exceed 24 oz. to the square foot.

O'NEILL'S PATENT PLANISHED COPPER.

14x48.

14 and 16 oz. and heavier.....36c. By the case, c. ₩ ℔
12 oz. and lighter.....30c. " " 38c. "

Boiler Sizes.

7 in., 14x52. 8 in., 14x56. 9 in., 14x60
14 and 16 oz. and heavier.....33c. By the case, 31c. ₩ ℔
(And all sizes not over 20 inches wide.)

30x60

14 and 16 oz. and heavier.....40c. ₩ ℔
12 oz.....43c. "

TINNING.

14x48, by the case.....8c. ₩ sheet
14x48, less than case.....10c. "
Boiler Sizes, 7 and 8 inch.....12c. "
" 9 inch.....15c. "
Other sizes not larger than 30x60.....2½c. ₩ sq.
Larger than 30x60.....3c. "

LEAD—DUTY Pig $2 per 100 lbs.; old Lead, 1½ cent per lb.; Pipe and Sheet, 2½ cents per lb. All subject to a reduction of 10 per cent.

Spanish.....6¾ @ 7c gold
German Refined.....6½ @ 6¾c gold
English.....6½ @ 7c gold
American.....6¾ to 6¾c gold
Bar.....dis 10 %.....5½c.
Pipe.....dis 10 %.....8½c.
Tin Lined Pipe.....dis 10 %.....16½c.
Sheet.....dis 10 %.....8½c.
Shot.....dis 10 %.Drop, 8½c.; Buck. 9½c.

SOLDER.....No. 1, 15c; No. 2, 13½ @ 14c

STEEL—DUTY: Bars, Ingots, Sheets and Coils, valued at 7 cents per lb., or under, 2¼ cents; over 7 cents, and not above 11, 3 cents per lb.; over 11, 3½ cents per lb. and 10 % ad val. Railway Bars 1¼ cents per lb. Railway Bars, in part Steel, 1 cent per lb. All subject to a reduction of 10 per cent. Provided, that Metal cemented, cast or made from Iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as Steel.

American Cast Steel.

Tool.....15 @ 16c
Spring.....10c
Homogeneous.....12½c
Tire.....12½ @ 13½c
Machinery (round and square).....10 @ 11c
File.....11c
Sheet.....14 @ 16c
Saw Plate, mill and mulay.....14 @ 16½c
Saw Plate, gang and X cut.....13 @ 14c
" circular as to size.....18 @ 30c

Chrome Steel.

Tool.....₩ ℔ 20 @ 21c
Tool, extra fine.....' 40 @ 75c
Spring.....₩ ℔ 12c and upward
Machinery.....₩ ℔ 14c.
Hammer.....15c.
Gun or Homogeneous.....16c

English Steel,—payable in gold, dis 5 % cash.

Best Cast	₩ ℔	18c
Extra Cast	"	19c
Round Machinery, Cast	"	11½c
Swaged, Cast	"	18c
Best Double Shear	"	18c
Blister, 1st quality	"	13½c
" 2d quality	"	11½c
" 3d quality	"	10½c
German Steel, Best	"	11½c
do 2d quality	"	10½c
Sheet Cast Steel, 1st quality	"	18c
" 2d quality	"	16c
" 3d quality	"	14c
File Steel, Flat and ⅜ Round	"	12½c
" Square and Round	"	13c
" Mill	"	13½c
" Taper to 4 inch	"	15c
" Taper 3 and 2½ inch	"	18c

SPELTER—DUTY: In Pigs, Bars and Plates, $1 50 per 100 lbs.—less 10 per cent.

Silesian, cash.....6¾ @ 7c., gold
American " .....6¾ @ 11c., currency

TIN—DUTY: Plates, Sheets, Tagger and Terne, 15 per cent. ad val.; Electro-galvanized Plates, 2 cents per ℔; Manufactures of, not enumerated, 35 per cent. ad val. —all subject to a reduction of 10 per cent. Bars, Block and Pigs, free. Banca, subject to duty of 10 per cent.

Banca.....₩ ℔ 25 @ 25½c., gold
Straits.....₩ ℔ 22 @ 22½c., gold
English.....₩ ℔ 21¾ @ 22c., gold

CHARCOAL TIN PLATE.

I C 10x14, Prime Charcoal		10·75 to 11·00
12x12, "		11·50
14x20, "		11·75
I X 10x14, "		13·25
12x12, "		13·75
14x20, "		14·25
D C 12½x17 "		10·50
D X 12½x17 "		12·75
For each additional X add		2·25

COKE TIN PLATE.

	Best.	2d Quality.	Ordinary.
I C 10x14	$10·25 @ 10·75	9·50 @ 10·00	9·00 @ 9·50
I C 12x12	10·75	10·50	
I C 14x20	11·25	10·50	

TERNE PLATE.

	Prime Char.	3d qual.	Coke.
I C 14x20	$10·00	9·25 @ 9·75	7·75 @ 8·50
I X 14x20	12·25		
I C 20x28	20·00 @ 21·00	19·00 @ 19·75	16·50 @ 18·00
I X 20x28	26·00		
I C 20x100 ft.	24·00		

ZINC.—DUTY: Pig or Block, $1 50 per 100 lbs. Sheet 2½c. ₩ ℔. All subject to a reduction of 10 per cent.

Sheet.....cask 9¾c
" .....open 10c

Paper Stock, Old Metals, &c

(Dealers' Selling Prices.)

Canvas linen.....6¼ @
" cotton, No. 1.....6¾ @ 7
" " No. 2.....@ 5
White linen rags, No. 1.....6 @ 6½
" " No. 2.....4¾ @
Colored.....2½ @
Mixed woolens.....@ 2¼
Soft woolens.....@ 5½
Gunny bagging.....1¾ @ 2
Jute Butts.....2¼ @ 2⅜
Kentucky bagging.....5¼ @ 5½
Book stock.....4 @ 4¼
Waste paper and scraps.....1 @ 1¾
Rope cuttings.....1¾ @ 3
Kentucky Bale rope.....4 @ 4½
Oakum junk, No. 1.....5¾ @ 5¾
" No. 2.....@ 4
Grass rope.....3¾ @ 4
Tarred Shaking.....1¾ @
White Collar Cuttings, all paper.....7 @
" " " muslin lined.....5 @
" Envelope " .....7 @
Hard White Shavings, No. 1.....6½ @
Soft " " No. 1.....6 @
White Shavings, No. 2.....5¾ @ 6
Mixed Shavings, part white.....4 @ 4¾
Imperfections, No. 2, best folded sheets.....5 @
" " 1, Heavy Stock.....4¾ @ 5
Book Stock, Mixed.....3½ @
" " No. 2, light.....2 @ ¾
Prints.....1½ @ 2
Pure Manilas.....2
Bogus Manilas and Hardwares.....1 @ 1¾
Commons.....1 @
Binders' Board Cuttings.....1¾ @ 2
Straw Board Cuttings.....1¾ @ 1¾

Old Metal.

Copper.....@ 20
Yellow metal.....14 @ 15
Brass.....13 @ 14
Heavy Composition.....17 @ 18
Old lead, solid.....6 @ 6¼
Tea lead.....4½
Wrought iron.....1¾ @ 1¾
Sheet iron.....0¾ @
Cast iron.....1 @ 1¼
Machinery iron.....1¼ @
Zinc.....
Pewter, No. 1.....17
" No. 2.....10 @ 12
Spelter.....5½ @ 6

Paints, Oils, etc.

Paints.

Black, lamp—Coach Painters.....₩ ℔ 20c
" Ordinary.....6c
" Ivory Drop, fair.....15c
" " best.....26c
Black Paint, in oil.....kegs, 8c.; asst'd cans, 11 c
Blue, Prussian, fair to best.....50 @ 75c
" " " in oil.....35 @ 65c
" Chinese, dry.....33c
" Ultramarine.....25 @ 30c
Brown, Spanish.....1¼c
" Van Dyke.....9c
Carmine, 40.....$12 00
Green, Chrome.....15 @ 25c
" " in oil.....18 @ 25c
" Paris.....good, 30c; best, 40c
" " in oil.....30c " 45c
Mineral Paints.....1¼ @ 4c
Orange Mineral.....14½c
Red Lead, American.....9¼c
" English.....10¾c
" Venetian (N. C.) dry.....2¾c
" " in oil.....asst'd cans, 11c; kegs, 8¾c
" Indian, dry.....10c
Rose Pink.....13c
Sienna, American, Raw.....4c
" Burnt.....1¼c
" " in oil.....16 @ 20c
" R. W. " .....15 @ 25c
Umber, Burnt.....4 @ 8c
" " in oil.....16 @ 21c
" Raw.....3½ @ 7½c
" " in oil.....16 @ 22c
Vermillion, Chinese.....
" English.....1 90
" Trieste.....1 65
" American, Common.....23c
White Lead, American, pure dry.....10¾c
" " in oil.....11¾c
White, Paris, English, prime.....in bbls. 2¼ @ 2¾c
Yellow Ochre, French.....2¼ @ 2¾c
" " " in oil....asst'd cans, 11c; kegs, 8¾c
" Vermont.....in casks 1¾c
" Chrome.....17 @ 21c
" " in oil.....18 @ 23c
Zinc White, American No. 1 dry.....9c
" " " 1, in oil.....11c
" French (Paris).....11 c
" " " in oil.....12 c

Oils.

Linseed Raw.....₩ gal. casks, 79c. bbls. 80c
" Boiled.....' 81c. " 85c
Whale, Crude.....
" Bleached Winter.....
Sperm, Crude....." 1·65
" Winter unbleached....." 1·85
" " Bleached....." 1·90
Seal, Extra Refined.....
Lard, Pure Winter.....
" Spring.....1·00
Cotton Seed, Crude....." 60c
" Southern Yellow....." 65c
" White.....
Neatsfoot, Winter.....70c @ $1·10
Natural Lubricating.....38c @ 40c

Sundries.

Asphaltum.....
Benzine.....₩ gal. 16c
Chalk.....1¼c
" Block.....
Dryer, Patent, Am'n.....asst'd cans, 10½c.; kegs 9c
" English.....' 11c.; " 9c
Flocks.....
Frostings.....50c
Glue, White.....33 @ 47c
" Sheet.....20c
Glaziers' Points, Zinc.....9c
Gum, Copal.....36c
" Damar.....25c
" Shellac, English.....75c
" " dark.....70c
Litharge.....10c
Pumice Stone, selected Lumps.....6 @ 6c
" powdered.....4c
Putty in bladders.....3½c
" in bulk.....3c
Rotton Stone, soft, English.....8c
Spirits Turpentine.....38c
Whiting, Spanish.....1c

Glass.

French Windows—1st, 2d, 3d, and 4th qualities. Per box of 50 feet.

SINGLE.

SIZES.	I.	II.	III.	
6 x 8 to 10 x 15	$10·25	$9·25	$8·75	$8·00
11 x 14 to 16 x 24	12·00	11·00	10·00	9·50
18 x 22 to 20 x 30	15·00	13·50	12·00	10·50
15 x 36 to 24 x 30	17·50	15·25	12·50	
26 x 28 to 24 x 36	18·25	16·00	13·25	
26 x 36 to 28 x 44	20·00	18·00	14·50	
28 x 46 to 30 x 50	21·00	19·00	15·25	
30 x 52 to 30 x 54	22·50	20·25	16·25	
30 x 56 to 34 x 56	24·50	21·75	19·00	
34 x 58 to 34 x 60	26·00	24·50	21·75	
36 x 60 to 40 x 60	30·50	27·00	24·50	

DOUBLE.

SIZES.	I.	II.	III.	IV.
6 x 8 to 10 x 15	$15·50	$13·00	$14·00	$13·00
11 x 14 to 16 x 24	19·25	17·75	16·00	15·25
18 x 22 to 20 x 30	24·00	21·75	19·25	
15 x 36 to 24 x 30	26·00	24·50	20·00	
26 x 28 to 24 x 36	29·25	25·75	21·25	
26 x 36 to 28 x 44	32·00	29·00	23·25	
28 x 46 to 30 x 50	35·75	30·50	24·50	
30 x 52 to 30 x 54	36·00	32·50	26·00	
30 x 56 to 34 x 56	39·25	35·00	30·50	
34 x 58 to 34 x 60	41·75	39·25	34·25	
36 x 60 to 40 x 60	49·00	43·25	39·25	

Sizes above—$12·00 per box extra for every 5 inches.
An additional 10 per cent. will be charged for all Glass more than 40 inches wide. All sizes above 52 inches in length, and not making more than 84 united inches, will be charged in the 84 united inches bracket.
Discounts 60&5 %.

Hardware.

PRATT & CO.,

Hardware & Iron Merchants, Buffalo, N. Y.

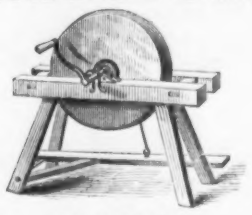
Manufacturers of the Superior Brand,

BUFFALO FORGED HORSE NAILS.

These Nails are superior, being made with

Grindstones, Emery, &c.

Walter R. Wood,
GRINDSTONES.



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BEREA STONE CO., of Ohio.
NOVA SCOTIA and other brands.
283 & 285 Front Street, New York.

Grindstones.

AMHERST,
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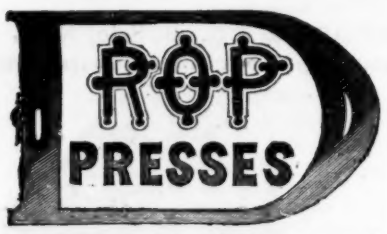
LAKE HURON,
AND BEREA.

Also Scythe Stones.
WORTHINGTON & SONS, Mfrs.,
North Amherst, Ohio.

EMERY WHEELS AND MACHINERY
Upon which to run the same, of all kinds.
EMERY Emery Cloth, Mill Stone CEMENT. TRADE MARK. DIAMOND Tools, Oil Stones,
Soapstone Register Borders.
For particulars, address,
UNION STONE CO.,
6 Exchange and 26 Devonshire Streets, Boston, Mass.

THE LEHIGH VALLEY
Emery Wheel Co.,
Weissport, Penn.
Manufacturers of
"LEHIGH" Emery Wheels and Machines.
Send for Circulars.

THE
Rocky Mountain Vermilion Paint
is "Nature's Compound" of Copper, Mercury, Lead and Iron. A pure Oxide of Metals, containing no earthy matter, hence we claim and are prepared to *prove* that it is the Best and Cheapest Paint in the market. Properly mixed, we will guarantee it to cover double the surface and wear twice as long as ordinary paints. It will not Peel, Scale, Crack or Blister, though subjected to high degrees of heat. It will effectually Prevent the Corrosion of Metals, even in mid ocean. Warranted superior to red lead or any other lead, for any and all purposes for which paint is required. Please send for circulars.
All orders should be addressed, **Wm. H. Corey.** General Agent, 20 Sabin St., Providence, R. I.



Bennett Hotchkiss and N. C. Stiles' Patent.

This Drop (which has been illustrated in this journal as of that class in which the Hammer is raised by a stiff belt or board passing up between two friction rolls, and is so well known that we will only describe our improvements. The patents we are working under are those of BENNETT HOTCHKISS (who in an interference case with Goulding and Cheney was declared the first inventor) and N. C. STILES. Our improvements consist:

First.—Of an arrangement of parts that makes it the most complete Jobbing Hammer, and will take the place, to a great extent, of all other kinds for forging. In addition to the upright rod, which is operated by the hammer to open and close the rolls, we place another rod the lower end of which is secured to the end of a lever which is operated by the hand or foot, which operation also opens and closes the rolls at will. The lower end of this rod has a slot, so that the action of the hammer will not disturb the hand lever, thereby preventing the hand being injured, as otherwise would be the case.

Second.—No dog is used on the upright to hold up the hammer. The belt or board passes up between two clamps situated under the rolls, so arranged that as the hammer ascends they will freely open of themselves, but on descending they will close and hold up the hammer. To let the hammer fall the clamps are opened by pressure upon the foot treadle.

Third.—The board or belt is secured to the hammer by an elastic connection, which prevents the sudden jar and destruction of the same. The back roll is made adjustable to different thicknesses of board or belt, as also are the clamps. An adjustable collar on the upright rod allows the operator to obtain *any hight* of blow desired automatically. If one blow is wanted, press upon the treadle and remove the pressure as soon as the blow is given. Keep the foot upon the treadle and the blows will be repeated until the pressure is removed. If a blow of less hight than the collar is set for is required, work the hand lever, which will give you any hight of blow desired. The hammer can be held up at any point below the collar by bringing the hand lever into action when the hammer is at the desired hight, so that the next blow can be given from a state of rest, of less hight than the collar is set for. This is a feature no other drop has; that is, the first blow struck can be of less hight than the second or third, and obtained from a state of rest. A gentle pressure upon the treadle will allow the hammer to go down slowly, but it will stop and remain suspended at any point as soon as the pressure is removed.

The clamps in holding up the hammer keep the board from touching either roll and prevents the same from being worn uneven.

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Established in 1839.

Registered March 31, 1874.

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These recent improvements in combination with the nut inside the ferrule firmly screwed up flush, against square, solid bearings (that cannot be forced out of place by use), verifies our claim that we are manufacturing the strongest Wrench in the market.

We would also call attention to the *fact*, that in 1869 we made several *important* improvements (secured by patents), on the old wrench previously manufactured by L. & A. G. Coes, which were *at once closely* imitated and sold as the *Genuine* Wrench by certain parties who seem to rely upon *our* improvements to keep up their reputation as manufacturers, and although the fact of their imitating our goods may be *good* evidence that we manufacture a superior Wrench, we wish the trade *may not be deceived* on the question of *originality*. Trusting the trade will fully appreciate our *recent* efforts, both in improvements on the Wrench and in the adoption of a Trade Mark, we would caution them against imitations. None genuine unless stamped

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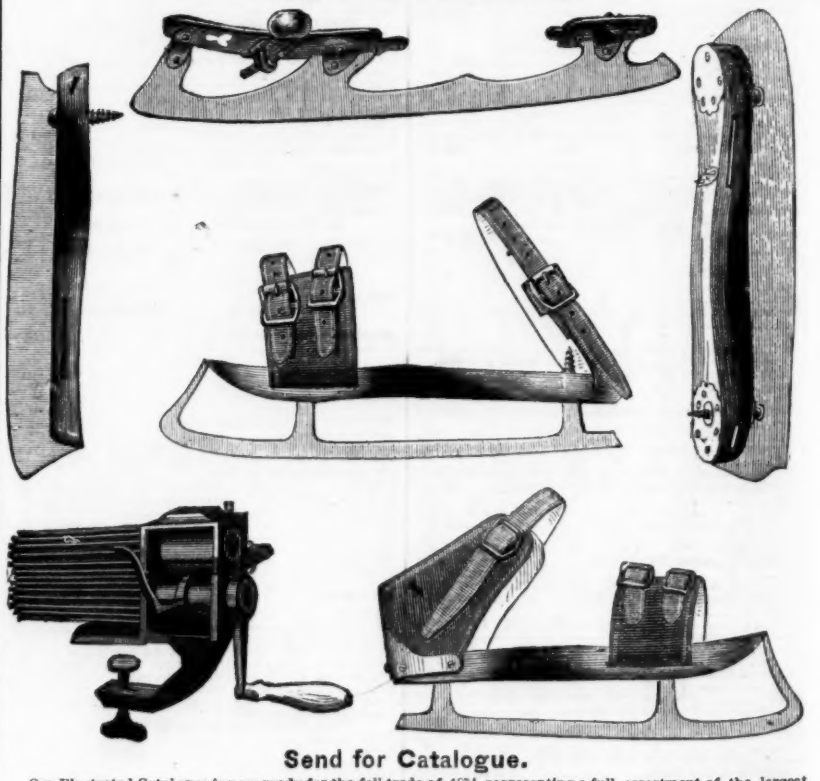

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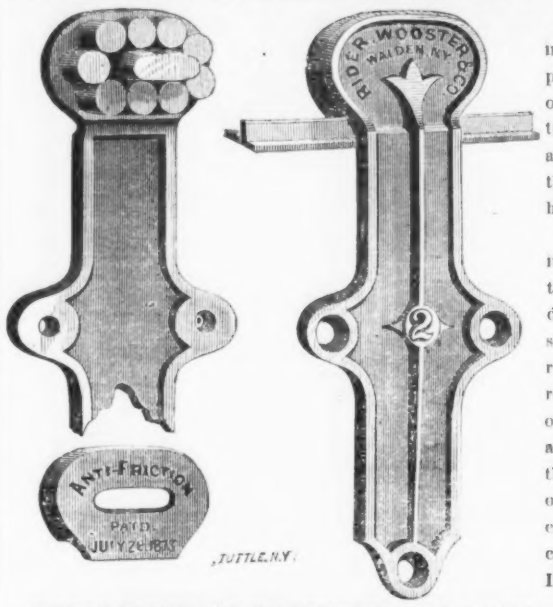

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No Axles and Sheaves to grind and break.

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Fig. 1.

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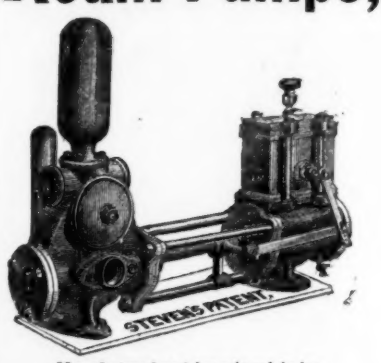

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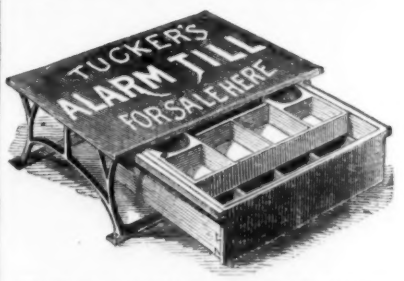

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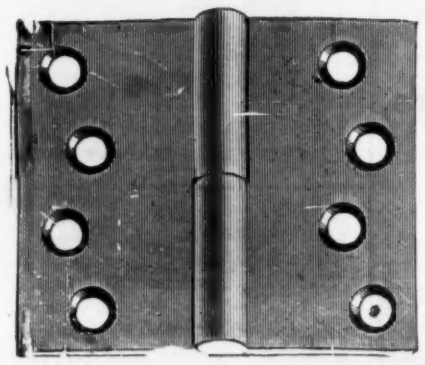

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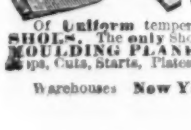

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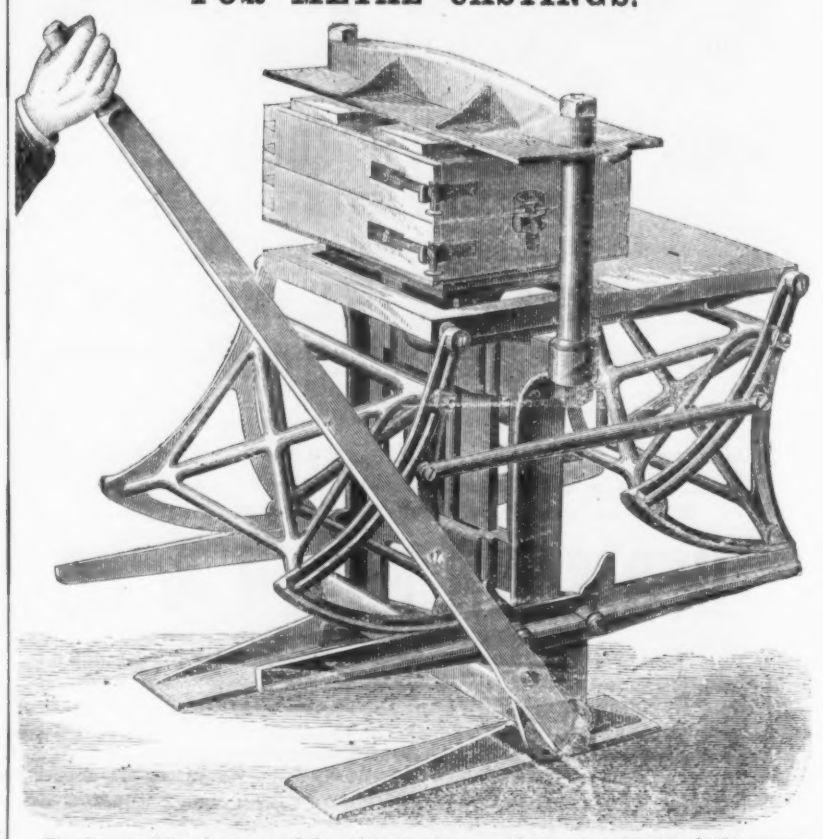

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2d. A man can learn to mold with the machine in less than 30 days' time.

3d. The castings produced will be found more perfect, less poor work, and more uniform than if molded by the old method.

The machine is adapted for either Iron or Brass Castings. For further particulars, send for Circular. Address,

P. & F. CORBIN,

EXCLUSIVE LICENSEES.

New Britain, Conn.

The Hart, Bliven & Mead Mfg. Co.,

18 & 20 Cliff and 243 & 245 Pearl Street, NEW YORK.

Factories at KENSINGTON, CONN.

Manufacturers of STATIONERS' HARDWARE.

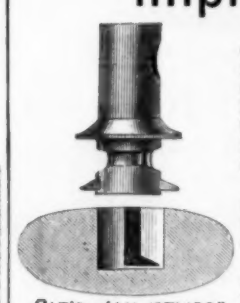
Paper Files,
Paper Clips,
Pen Racks.

Twine Boxes
Bill Stickers,
Match Safes.

In Japanned and Enameled Iron and Bronze Metal.

Send for our Catalogue and Appendix. Price $4·50, and charge remitted on receipt of subsequent orders.

Improved Door Knobs.



On the 10th January, 1865, we obtained Letters Patent for improved method of securing necks to Mineral and Porcelain Door Knobs, which improvement was used by us long enough to prove its utility, but on account of unsettled claim of joint ownership by former partner, its use was discontinued. Having now made a further improvement, for which we have made application for a Patent, we are now making the **BEST SECURED** and **MOST DURABLE** Mineral and Porcelain Door Knobs ever offered in this or other markets.

We solicit orders for these Knobs at our regular prices for old styles, with the understanding that if any can be loosened from or gotten off the necks without breaking the tops, they may be held by the purchaser subject to our order, with expenses added.

See *The Iron Age*, of August 21st., page 11, for illustrated description of our patent **Telescope Locks and Latches,** with patent Flat Steel **Perforated Keys,**

Address

BRANFORD LOCK WORKS,

Branford, Conn.

Or, THE HART, BLIVEN & MEAD MANUFACTURING CO., Agents,

18 & 20 Cliff and 243 & 245 Pearl Streets, New York

NEWCOMB BROS.,

Manufacturers of

Smiths', Moulders' and Hand

BELLOWS.

For further particulars send for descriptive circular and price list.

586 Water St., near Montgomery N. Y

J. CLARK WILSON & CO., Agents, 81 Beekman Street, New York.

PHILADELPHIA.

(Corrected weekly by Lloyd, Supplee & Walton).

Terms, 30 days. For 60 or 90 days, interest added at 10 per cent. per annum.

Anvils.—Solid Cast Steel.....₱ ℔ 14c
Peter Wright's.....₱ ℔, gold, 12½c
Wilkinson's.....11½c
Eagle.....11 cents currency—dis 15 @ 1½&5 %
Apple Parers.—Union.....per doz $6 50 net
Skeleton ..... " 6 50 net
Victor..... " 6 75 net
Domestic ..... " 7·00 net
Reading ..... " 7 00 net
Bay State Paring, Coring and Slicing.. " 12 00 net
" " Peach Parers..... " 10 50 net
Axes.—Mann's Light.....Per doz. $13 00 @ 12 50
Hunt's Light..... " 13 00 @ 12 50
Red Indian, all sizes..... " 12 50 @ 12 00
Red Chieftain, all sizes..... " 13 00 @ 12 50
Crown Prince..... " 13 50 @ 13 00
Augers and Auger Bits.—Pierce's Pat. Twist Bits.....dis 25 @ 30 %
Douglass' & Ives' Bits.....dis 30&10 %
Connecticut Valley Auger Bits .....dis 35&10 %
Cook's Bits.....dis 40&10 %
Jennings' Bits.....dis 10 %
Bates' Nut Augers.....dis 30&5 %
Douglass' & Ives' Augers.....dis 30&10 %
Watrous' Ship Augers.....dis 10 %
Bonney's Pat. Hollow Augers.....dis 25 %
Stearns' Patent Hollow Augers.....dis 25 %
Balances.—Landers, Frary & Clark's....dis 20 @ 22½ %
Chattillon's.....dis 20 @ 22½ %
Morton's.....dis 20 @22½ %
Common Spring with Hook..... ₱ doz $1 38 @ 2 00
Bells.—Bevin Bros. Mfg Co. Light Hand Bells.....dis 60&10 %
Other makers light.....dis 65&10 %
Swiss Pattern Hand Bells.....dis 50 %
Connell's Door Bells.....dis 50 %
Great Western and Kentucky Cow.....dis 50&10 %
Boring Machines.—Bates' Mfg. Co., complete with augers.....dis 15 @ 20 %
Douglas Mfg. Co., complete with augers..dis 15 @ 20 %
Common Boring Machines, no Augers.....$4 25 @ 4 00
Angular " " ..... 5 25 @ 5 00
Bolts.—Eastern Carriage Bolts .....special prices
Western " " ..... "
Philadelphia " " .....dis 50&5 @ 50&10 %
" Eagle, (Coleman's)....dis 50&5 @ 50&10 %
Wrought Shutter.....dis 50 @ 50&5 %
Braces.—Barber's.....dis 40&5 %
Rackus.....dis50 %
Bartholomew's American Ball.....dis 10&10 %
Spofford.....dis 40 @ 40&5 %
Butts.—Cast Fast Joint, Narrow.....dis 30 %
" " Broad.....dis 50 @ 50&5 %
Cast Fast Loose Joint.....dis 50 @ 50&5 %
" Acorn, Loose Pin.....dis 50 %
Wrought Loose Pin.....dis 35 %
" Table Hinges and Back Flaps.....dis 40 %
" Narrow.....dis 30 %
" Loose Joint.....dis 35 %
" Reversible.....dis 35 %
Parker's Blind Butts, Sheperd's, Clark's, Cherrytree } Discount 50 % by the case 50&10 %
Lull & Porter's Blind Butts .....dis 45&50 %
Chains.—German Halter.....dis 15 @ 20 %
" Coil.....dis 15 @ 20 %
Galvanized Pump..... ₱ ℔ 15c
Best Proof Coil Chain—

₱ ℔...	13½	10½	9½	9	8¾	8½	8c gold
	¼	5-16	⅜	7-16	½	⅝	in.

By the cask, 560 lbs., discount ½c per lb. Common Chain, ¼c per lb. less than proof.
Chisels.—Socket Framing.....dis 60 @ 60&10 %
Socket Firmer.....dis 60 @ 60&10 %
Tang " .....dis 40 @ 40&10 %
Beaty's Framing and Firmer.....dis 10 @ 15 %
Casters.—Porcelain Wheel.....dis 40&10 %
Iron and Brass Wheels.....dis 40 %
Iron Bed.....dis 40 %
Clothes Wringers.—Universal.....per doz $35 00
Novelty. " $8 00
Monitor..... " 53 00
Discount in 2dozen lots, $2 per dozen.
Coffee Mills.—Common Box and Side.....dis 10 @ 15 %
Patent Box and Side.....dis 10 @ 15 %
Cutlery.—American Pocket (best).....dis 25 %
Landers, Frary & Clark, J. Russell & Co. and Lamson & Goodnow Mfg. Co. Manufacturers' net prices.
Drawing Knives.—Hart Mfg. Co.'s ..dis 60 @ 60&10 %
Concave Adjustable Handle.....dis 10 %
Beatty.....dis 10 @ 15 %
Fry Pans.
Tinned.....dis 20 %

₱ doz..	$4·00	3·25	3·62	4·00	4·50	5·00	5·50	6·00	7·50
No....	0	1	2	3	4	5	6	7	8

Burnished.

₱ doz..	$2·80	3·00	3·38	3·75	4·13	4·50	5·00	5·62	6·75
No....	0	1	2	3	4	5	6	7	8

Files.
Nicholson Mill Files...new list, $5 00 to £ cur dis 12½ %
" Bastard..... " 5 00 to £ cur dis 12½ %
" Taper..... " 5 00 to £ cur dis 12½ %
Butcher's Mill.....$5 50 to £ gold
" Bastard..... 5 50 to £ gold
" Taper..... 5 50 to £ gold
Fluting Machines.
K. F. M.—4½ in. rolls, $5·50.....dis 10 %
" —6 in. rolls, $6·65.....dis 10 %
Mrs Knox—4 in. rolls, $5·50.....dis 10 %
" —6 in. rolls, 6·65.....dis 10 %
Hammers.
Yerkes & Plumb's.....dis 15 %
Hammond & Son's.....dis 15 %
Veree.....dis 15 %
Hatchets.
Beatty's.....dis 10 @ 15 %

Shingling and Half.	₱ doz..	$7·00	7·50	7·75	8·00
	No.....	1	2	3	

Yerkes & Plumb.....dis 15 %

Shingling and Half.	₱ doz..	$7·00	7·50	8·00	8·50
	No.....	1	2	3	4
Claw.....	₱ doz.	$7·50	8·00		
	No.....	1	2		3

Hinges.—Strap and T.....dis 40 %
Parker's Blind, Shepard's, Clark's " for wood, Cherrytree Blind for wood. } Discount 50 %. By the case 50&10 %.
Lull & Porter's Blind.....dis 40&10 %
" " by the case dis 50 %
Clark's Mortise Blind.....dis 40 %

Horse Nails.	Nos.	6	7	8	9	10
Ausable		27	25	24	23	22
Globe		28	26	25	24	23
Brundage		26	24	23	22	21
	Nos.	5	6	7	8	9
Putnam		32	28	26	25	24

On Ausable, Globe and Brundage 1000 ℔ lots.....dis 5 %
Knobs.—Door, Mortise and Rim.
Makes in Combination.....new list dis 45 %
Extra discount for cash 2 %
Mineral and Rim.....dis 5 %
Locks and Latches.—Rim and Mortise.....dis 45 %
Extra discount for cash 2 %
Till and Cupboard.....dis 25 %
American Padlocks.....dis 50 %
Scandinavian Pad Locks.

₱ doz.....	$10·50	10·50	12·00	12·00	13·00	15·00	dis 15 %
No.....	9	9½	10	10½	11	11½	
₱ doz.....	$13·00		18·00		22·00	22·00	dis 15 %
No.....	12		12½		13	13½	

Trunk Locks.....dis 5 @ 10 %
Thumb and Roggens Latches.....dis 25 %
Lanterns.—Square Candle and Oil.....dis 10 %
Globe for Oil.....dis 10 %
" " Kerosene.....dis 10 %
Tubular Lanterns.....dis 10 %
Mattocks.—Long and Short Cutter.....dis 25 %
Western Pattern.....dis 25 %
Pennsylvania Pattern.....dis 15 %
Molasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets.....dis 20 %
Stebbins' Gates .....dis 60 @ 60&10 %
Lincoln's " .....dis 40 @ 40&10 %
Landers, Frary & Clark's Petroleum...dis 10 @ 10&10 %
Taylor's Petroleum Faucets.....dis 20 @ 20&10 %
Brass Liquor Cocks.....dis 20&10 %
Meat Cutters.—Dixon's.....dis 10 %
Woodruff.....dis 10 %
Stowe.....dis 10 %
Hale's.....dis 25 %
Stuffers.....dis 10 %
Planes.—Auburn Tool Co., "Bench".....dis 35 @ 35&5 %
Second Quality.....dis 50 %
Metallic Plane Co.....dis 25&5 %
Evans Pat. Circular.....net
Plane Irons.—American.....list net
Butcher's.....gold £, $5 50
Pliers.—Philadelphia.....net
Pittsburgh.....net
Plumb and Levels.
Stanley Rule and Level Co.....dis 60&10 %
Wm. Johnson, (Stanley List).....dis 60&10 %
Rakes.—Cast Steel Garden.....dis 33½ %
Malleable Garden.....dis 33½ %
Wood Head Iron Teeth.....dis 30 @ 40 %
Rules.—All Maker's Boxwood...dis 60&10 @ 60, 10&10 %
All Makers Ivory.....dis 50 %
Steelyards.—American Pattern.....dis 15 %

₱ doz.....	$5·50	7·00	9·00	10·00	11·00	12·00
No.....	50	100	150	200	250	300

English Pattern.....dis 15 %

₱ doz.....	$7·00	8·67	10·67	12·67	14·67	16·67
No.....	50	100	150	200	250	300

L. F. & C. Excelsior.....dis 10 %

₱ doz.....	$9·00	10·00	12·00	15·00	18·00	21·00
No.....	50	100	150	200	250	300

Scythes.—Golden Clipper, Damascus Blade, Boxed and Sharpened.....₱ doz. $11·00 net
Clipper No. 10, Boxed and Sharpened.....₱ doz $10·50
" 5, " " " 10·00
Common Scythes.....₱ doz $7·00 @ 10·00
Squares.—Steel and Iron, new list.....dis 50 %
Saws.—Disston's Cross Cut.....dis 12½ %
Disston's Hand.....dis 12½ %
W. McNiece's H'd, Cross-Cut & Circ'r, new list..dis 15 %
Boynton's Lightning, new list.....dis 30 %
Shovels and Spades.
Rowland's Plain Back, list Sept. 1st.....dis 30 %
" Back Strap " .....dis 30 %
Oliver Ames & Sons.....new list dis 12½ %
Brady Shovel Co.....dis 12½&5 %
Sad Irons.—Richmond (polished face), per lb. 4 c. net
Richmond (polished face)... by the cask " 3¾c net
Stone.—Arkansas Oil, No. 1.....₱ ℔ $1·38
Turkey Oil, No. 1..... " 1·01
Washita Extra..... " 30c
" No. 1..... " 22c
" " 2..... " 18c
" " 5½c
Screws.—Iron.....new list, Jan. 1st, 1874, dis 54½ %
Brass.....dis 54½ %
Spoons.—
Plated.....dis 40&5 %
Britannia.....dis 40&10 %
German Silver.....dis 20 %
" Light.....new list dis 15&5 %
Lalance & Grosjean Iron.....dis 10 %
Springs.—Gray's Door.....dis 40 %
Torry's Door.....dis 40 %
Stocks and Dies......dis 15 %
Stove Polish.—Gem.....₱ gross, $5·00
Onyx..... " $5·00
Try Squares.—Winterbottom.....dis 10 @ 15 %
Stanley Rule and Level Co.....dis 45&10 %
Willis Thrall, No. 2.....dis 30&10 %
Disston's No. 2.....dis 40 %
Tacks, &c.—Half Weight Tacks.....dis 72½ %
" " by the case...dis 72½&7½ %
Clout and Finishing Nails.....7½ %
" " " by the case.....dis 7½ %
Traps.—Genuine Oneida—Newhouse list.....dis 20 %
Imitation " " " .....dis 30 %
Vises.—Solid Box.....₱ ℔ net 15c
Wrenches.—Coes Genuine.....dis 40 %
Coes Imitation Wrought Bar.....dis 50 %
" " Malleable Bar.....dis 60 %
" " (Kellogg) Malleable Bar.....dis 50 @ 10 %
Tafts Pattern (Wrought Bar).....65 %
" " Kellogg's (Nail Bar).....dis 65&10 %
Philadelphia Tool Co.'s Pat. Duplex.....dis 25 %
" " " Improved Baxter.....dis 25 %
" " " Adjustable Fork.....dis 25 %
Wire.—No. 0 to 18.....dis 40 %
No. 19 to 26.....dis 45 %
No. 27 to 36.....dis 45 @ 47½ %
Coppered 0 to 12.....dis 15 @ 20 %
Tinned Broom Wire.....dis 20 %
Galvanized Wire No. 0 to 18.....dis 40 %

BUFFALO.

Reported by Messrs. Sidney Shepard & Co.

Sept. 12, 1874.

Augers—Snell Mfg. Co.....dis 20 %
Bits, Auger—Snell Mfg. Co.....dis 20 %
Bells, Cow—Law's Genuine.....dis 30 %
Bolts—Carriage and Tire.....dis 75&10 %
Braces—Bit, Spofford's Patent.....dis 40&5 %
Brads, Cut.....dis 50&7½ %
Boards—Stove, Brooks' Patent.....dis 30 %
Butts—Brass.....dis 25 %
Wrought Narrow.....dis 30 %
" Broad, Loose Joint.....dis 35 %
" Table and Back Flaps.....dis 30 %
Wrought Butts, Loose Pin.....dis 35 %
Belting—Rubber.....dis 30 @ 35 %
Leather, new list, oak tanned.....dis 20 %
Brick—Bath (box of 2 doz) Best English.....$1·50
" Rutherford".....$1·00
Chalk—White, Carpenter's .....₱ gross, 50c
Red, Carpenter's ..... " 75c
Blue, " ..... " 90c
Chisels—Firmer Socket.....dis 60&10 %
Framing Socket.....dis 60&10 %
Corner Socket Chisels.....dis 60&10 %
Slick's Carpenters'.....dis 60&10 %
Castings—Malleable.....dis 60&10 %
Clothes Wringers, "Novelty" No. 2.....₱ doz $36 00
Elbows—Corrugated.....5 | 5½ | 6 | 7
Charcoal.....$3·50 | 4·50 | 5·25 | 6·50 } dis 10 %
Russia.....7·00 | 9·50 | 12·00 | 14·00
Files—Maischoss Bros.....dis 50 %
Freezers Ice Cream—"Champion".....dis 33½ %
Hammers—Henry W. Kip's.....dis 7½ %
Hinges—Window Blind—
Clark's.....dis 50&10 %
Shepard's and Standard.....dis 55&10 %
Wrought Strap and T.....dis 30&10 %
Hods, Coal—Plain, Black and Galvanized.....dis 10 %
Funnel, Black and Galvanized.....dis 10 %
Fancy and Helmet.....dis 10 %
Palace Coal Vases.....dis 10 %
Hooks and Staples—Wrought.....dis 10 %
Hooks—Belt.....dis 50&10 %
Hasps and Staples—Wrought.....dis 60&10 %
Iron Bars.....4c
Kettles—Brass.....₱ ℔ 50c
Enameled.....dis 50&3 %
Knives, Drawing—Oval No. 1.....dis 60&10 %
Razor Blade.....dis 50&10 %
Lanterns "Peerless," ....No. 1 | 5 | 10
₱ doz $26 00 | $10 50 | $13 75 dis 10 %
Tubular.....
" with Guards.....
Machines—Apple Paring, "Turn Table".....$4·00 ₱ doz
Mills, Coffee—Box and Slide, common.....dis 15 %
Box Union and Eagle.....dis 15 %
" American .....dis 15 %
Nails—Clout and Finishing.....dis 20 %
Shoe.....dis 7½ %
Horse, Ausable.....No. 5 | 7 | 8 | 9 | 10
30 | 27 | 25 | 24 | 23c
" " Finished & Pointed.....add 1c ₱ ℔
" " 1000 lbs.....
" Clinton.....No. 6 | 7 | 8 | 9 | 10
22 | 20 | 19 | 18 | 17c
Packing—Rubber.....dis 30 @ 35 %
Pencils, Slate—Soapstone.....4 | 5 | 6in.
30 | 40 | 50c. ₱ 100
Case lots.....
Paint—White Lead, U. S. Gov't.....dis 20 %
Rivets—Iron, Black and Tinned.....₱ ℔ 9 c
Rope—Manila, ½ inch and larger.....dis 25&7½ %
Screws—"American Screw Co"—
Flat Head, Iron.....₱ ℔ 15½c
Flat Head, Brass.....dis 52½ %
Staples—Blind, Boardman's Pat., ½ & ⅝.....dis 52½ %
Spoons, Iron Tinned.....₱ ℔ 37c
" by the case.....dis 10 %
Plated Rogers' A No. 1.....dis 20 %
Britannia.....dis 40&10 %
Squares—Steel and Iron.....dis 45&10 %
Shoes, Horse—H. Burden & Sons.....new list 50 %
Saws—Henry Disston & Sons.....₱ keg $6·00
Scales—Buffalo Scale Works.....dis 10 %
" Fairbanks.....dis 25 %
Traps, Steel—Newhouse.....dis 15 %
Tacks—Half Weight Am. Iron.....dis 30 %
Vises—Parallel, Buffalo.....dis 72½&7½ %
Ware—French, Tinned and Iron.....dis 20 %
Stamped and Japanned.....dis 25 %
Cast Iron Hollow.....dis 10 %
Tin Plates.—Add for each X.....dis 33½ %
10x14, IC. Charcoal...$11·25 | 14x20 C. terne.....$2·50
12x12, " ... 11·75 | 20x28 C. " .....$10·25
12½x17, " ... 10·75 | 20x28 X. " .....21·50
14x20, " ... 13·25 | .....26·00
Pig Tin—Straits.....28c @ 29c
Bar Tin.....30c
Solder.....No. 1, 15c; No. 2, 14c
Sheet Zinc—
"Lasalle".....570 lbs 100 ℔ casks
.....$10·00 | 10·30 ₱ 100 ℔s
Sheets.....$10·00
Iron Wire—Bright and Annealed.....dis 40 %
Coppered.....dis 35 %
Tinned.....dis 15 %
Tinned Broom, Nos. 20 | 21 | 22
20c | 21c | 21c } .....dis 20 %
Copper—Sheathing 14 @ 18 oz.....₱ ℔ 33c
Planished..... ₱ ℔
Bottoms.....₱ ℔ 33c
Bolts.....₱ ℔ 35c
Braziers' Sheets.....₱ ℔ 32c
Sheet Iron.—
18 Common.....$4 95
24 Common.....5 25
24 W. D. Wood & Co., Smooth Finish.....5 90
Am. Russia.....A. 15c | B. 12c
Gen. Russia, No. 1 stained.....15c
" " clean.....19c
Galvanized.....dis 15 %

CINCINNATI.

Reported by Sellew & Co., Importers and Jobbers Metals, No. 214, 216 and 218 Main street.

Tin Plate.—I. C. 10x14 Charcoal.....$11 50 @ 12·00
I. X. 10x14 Charcoal..... 14 50 @ 15·00
I. C. Terne 14x20..... 10·00 @ 10·25
I. C. Terne 20x28..... 21·00 @ 21·50
I. C. Continuous..... 24·00
Block Tin.—
Pig.....₱ ℔ 27c @ 29c
Solder.—
S. & Co.....₱ ℔ 23c
Lead.—Pig.....₱ ℔ 7½c.
Copper.—
Ingot.....₱ ℔ @ 74c
Planished... " @ 39c
Sheathing .. " @ 33c
Copper Drops @ 38c
Zinc. Cask, 500 to 1000 lbs.....₱ ℔
Case, 100 lbs..... "
Slab..... "
Brass.—
Roll, No. 6 to 30. ₱ ℔ 30c
" 30 to 38. " 35c
Babbit Metal.—
Sellew & Co.....₱ ℔ 35c
Antimony.....
Bismuth.....
Bars.....₱ ℔ 31c
A 1..... " 19c
Roofing ..... " 17c
Bar.....₱ ℔ 8½c
Sheets..6 to 8 lb...₱ ℔ 38c
" 10 to 12 oz... " 35c
Braziers 18 lb..... " 32c
Copper Bottoms " 34c
.....10½ %
..... 11 c
..... 7¼c
Pig Tin.—
Large Pigs.....29c
Small Pigs.....30c
Bars.....31c
Solder.—No. 1.....17c
No. 2.....16c
Bright Wire...dis 37½ %
Sheet Iron.—
No. 18 Am. Com.....4 80
No. 24 Am. Com.....5 00
Russia, No. 9, 10, 11&12, 18¼c
W. D. WOOD'S & CO.'S SHEET IRON.—
Nos. 15 to 20 Smooth $6 10
" 21 to 24..... 6 30
" 25 & 26..... 6 50
" 21 to 24 Char'l.. 7 80
" 25 & 26 " .. 8 00

A. PARDEE, Hazelton, Pa. J. G. FELL, Phila.

A. PARDEE & CO.,
303 Walnut St.,
PHILADELPHIA'
MINERS AND SHIPPERS OF
Lehigh Coals.

The following superior and well-known Lehigh Coals are mined by ourselves, and firms connected with us, viz.

A. Pardee & Co. { HAZLETON. CRANBERRY. SUGAR LOAF
G. B. Markle & Co. { JEDDO. HIGHLAND.
Pardee, Bro. & Co. LATTIMER

OFFICES:
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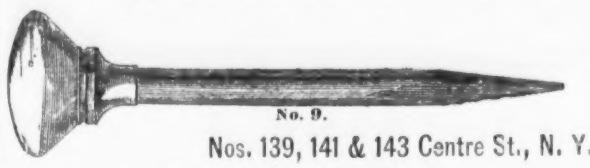
WM. MERSHON, Agent, 111 Broadway N.Y
WM. H. DAVIS, Agent, Easton, Pa

DETROIT.

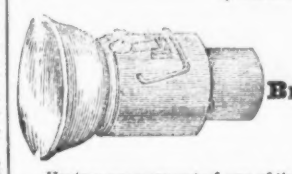
(Reported by Messrs. Jewett & Root.)

Tin Plate.—Best Charcoal
IC, 10x14.....$11 25
IX, 10x14..... 14 00
XX, 10x14..... 16 75
IC, 12x12..... 11 75
IX, 12x12..... 14 50
IC, 14x20..... 12 25
IX, 14x20..... 15 00
XX, 14x20..... 17 75
XXX, 14x20..... 20 50
XXXX, 14x20..... 23 25
DC, 100 Plate..... 10 45
DX, " 13 50
DXX, " 16 25
DXXX, " 18 00
DXXXX 100 Plate .. 21 75
IX, 14x14..... 23 25
IC, 10x14 W..... 10 75
IX, 10x14 W..... 13 50
Roofing Tin.—Best Char.
IC, Terne, 14x20.....$10 25
IX, " 14x20..... 13 00
IC, Terne, 20x28 .... 21 50
IX, " 20x28 .... 25 50
Coke Tin.—
IC, 10x14 Coke..... $9 50
IX, 10x14, Coke 12 25
IC, 14x20, " 10 50
Sheet Zinc.—
Any width.....11c
Copper.—
Sheathing.....32c
Copper Bottoms.....32c
Planished Copper.—
Sheathing, 14x48.....39c
Boiler Size, No. 7.....41c
" " No. 8.....41c
" " No. 9.....41c
Tinning ₱ sheet, 14x48.....10c
" " No. 7.....10c
" " " 8.....14c
" " " 9.....16c
Pig Tin.—
Large Pigs.....29c
Small Pigs.....30c
Bars.....31c
Solder.—No. 1.....17c
No. 2.....16c
Bright Wire...dis 37½ %
Sheet Iron.—
No. 18 Am. Com.....4 80
No. 24 Am. Com.....5 00
Russia, No. 9, 10, 11&12, 18¼c
W. D. WOOD'S & CO.'S SHEET IRON.—
Nos. 15 to 20 Smooth $6 10
" 21 to 24..... 6 30
" 25 & 26..... 6 50
" 21 to 24 Char'l.. 7 80
" 25 & 26 " .. 8 00

MARKT & CO.,


No. 9.

Nos. 139, 141 & 143 Centre St., N. Y.
MANUFACTURERS AND IMPORTERS OF
Hardware Specialties,
DOOR KNOBS (Lava, Wooden, Porcelain & Mineral), SHUTTER, PICTURE AND DRAWER KNOBS,
Plate and Drop Escutcheons, Picture Nails and Curtain Pins,
BRIGHT WIRE GOODS,
Alarm Whistles and Mouthpieces,
FURNITURE NAILS,



Bright Halter & Coil Chains, French Wire Nails,
Wrought Iron and Brass Butts.
Having consignment of one of the largest German manufacturers of Halter and Coil Chains, we can offer inducements on these goods.
We shall be pleased to send our new lists and prices to those who will apply.

Morse Twist Drill and Machine Company,
New Bedford, Mass.,
SOLE MANUFACTURERS OF
MORSE PATENT STRAIGHT-LIP INCREASE TWIST DRILL.

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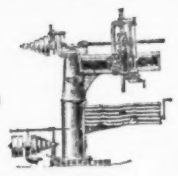

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All descriptions of Cast and German

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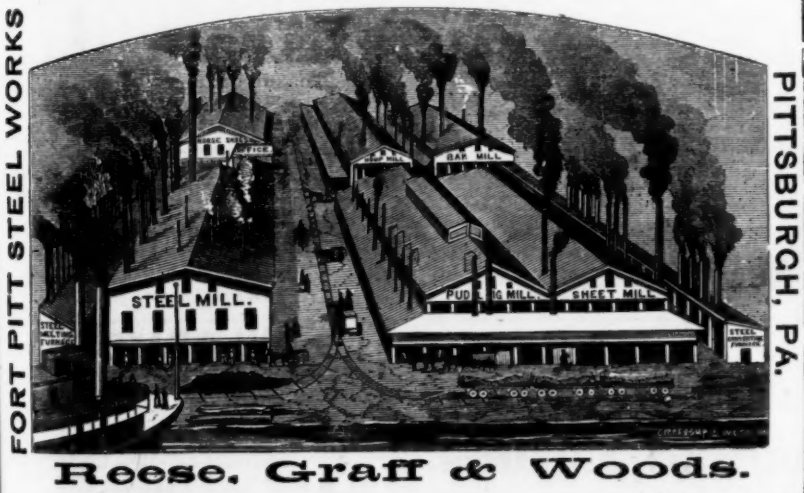

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COVERING ALL LOSS OR DAMAGE TO

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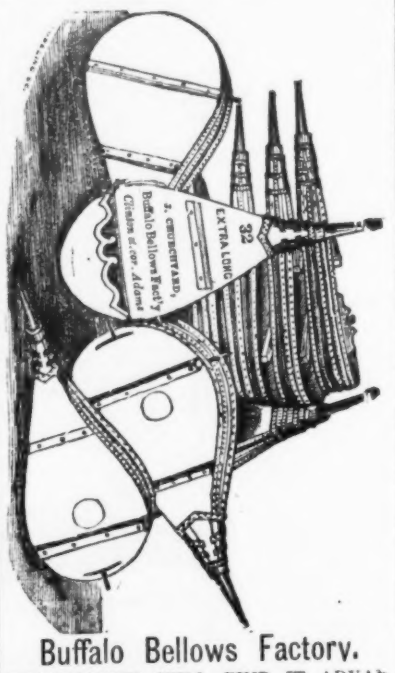

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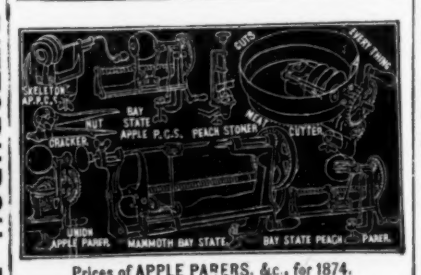

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Bay State Peach Parers	" 12 00
Peach Stoner and Halver	" 7 00
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"Skeleton" and "Union" in 50 doz. lots, ₩ doz $8 00. Other kinds included at 1 per cent. discount from list. Terms, 30 days, or 5 per cent. discount at sight draft be made on shipment.

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Tin Plate.—			
10x14, IC, Ch'l. Good	$	14x20, IX, Ch'l Best	$15 00
10x14, IC, " Best	11 50	14x20, IXX, " "	17 50
10x14 IX, " "	14 00	14x20, IXXX, " "	20 00
12x12, IC, " "	12 00	DC, 100 Plate, " "	11 50
12x12, IX, " "	14 50	DX, " "	14 00
14x20, IC, " "	12 50	DXX, " "	16 50
Roofing IC, Charcoal, Best		DXXX, " "	19 00
Roofing IX, Charcoal	"		11 00
20x28, IC, Charcoal Roofing, Com			13 50
20x28, IC, "			21 00
20x28, IC, "		Good	21 50
20x28, IX, "		Best	22 00
10x14, IC, Coke Plates		"	26 50
14x20, IC, "			10 00 @ 10 50
10x20, IC, "			10 50 @ 11 00
Block Tin.—			16 50
Large Pigs	32c	Bars	30c
Small	29c	Straits, 2c. higher.	
Zinc.—Sheet, 500 to 1000 lb. Casks			10½c
Loose Sheets			10½c
Slab Zinc or Spelter			6¾ to 8c
Copper.—Bottoms			33c
Sheathing			32c
Planished			36c
" Boiler lengths			40c
Ingot			24c to 26c
Bolt			40c
Braziers' Sheets.—			
30x60, 6 to 10 lbs. ₩ lb	41c	30x60, 15 to 100 lbs. ₩ lb	35c
30x60, 10 & 12 lbs. "	78c		
Solder.—F. S. & Co.'s make.			
Best Fine	22c	Roofing	18c
No. 1	20c	Braziers' or Soeit. Sold.	35c
Antimony			18c
Babbit Metal—F. S. & Co.'s			16c
No. 2			14c

Sheet Iron.—

	Common.	Smoothn. Com.	Smooth Charcoal.	Smooth Juniata.
No. 24	5 c	6 c	7½c	9½c
25 & 26	5½c	6½c	7¾c	9¾c
27	5½c	6½c	8 c	10 c

Galvanized Iron	dis 20 %
No. 16 to 20	12c
21 to 24	13c
25 & 26	14c
Russia Iron.—	
Perfect	20c
American Russia.—	
A	15c
Lead.—	
Pig	7½c
Bar	8½c
Wire—Bright	dis 35 %
Coppered	dis 30 %

No. 27	15c
28	16c
No. 1 Stained	19c
In Sheets, 1c. higher.	
B	12c
In sheets, 1c higher.	
Lead Pipe, in full coils	8½c
Lead Pipe, when cut	8½c
Sheet Lead	8½c

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Augers.—Watrous Ship dis 10 %
L'Hommedieu Ship dis 15 %
Axes.—Forester's Favorite, Bronzed $12 00
Blue Jackets, Blue 11 5
Excelsior, Black 11 00
Chopper's Prize, Bronzed 10 50
Red Cross, Red 10 00
Red Cross, Handled 12 50
Boy's Handled Blue Jackets 12 00
Axe Handles.—Wadleigh's Oak—
A (Extra) $2.50, B (No. 1) $2.00, C (No. 2) $1.50 ₩ doz
Bells, Sleigh—
Fancy Body, Patent Leather, Cloth Bound, White Metal, 30, No. 1 $1 70
Fancy Body, Patent Leather, Cloth Bound, White Metal, 36, No. 1 1 80
Fancy Body, Patent Leather, Leather Bound, Extra Tinned, 30, No. 1 2 88
Fancy Body, Patent Leather, Leather Bound, Extra Tinned, 36, No. 1 2 50
Fancy Body, Patent Leather, Leather Bound, Silver Plated, 30, No. 1 3 38
Fancy Body, Patent Leather, Leather Bound, Silver Plated, 36, No. 1 3 50
Shaft, Strap, White Metal, House Bells, extra, 6, No. 1 per pair, 70c.
Common, 6, No. 1 " 60c.
Blind Hinges.—Washburn's per hundred set $9 50
Blind Fasts.—Washburn's per hundred set $5 75
Bolts.—Carriage, Phila., "Girard Works" dis 50&10 %
Borax.—Best Refined ₩ lb 14c
Borers.—Angle, Backus' dis 30 %
Boring Machines.—Angle each $4 75
Common, Snell's quality each 3 75
Braces.—Barber's dis 40&5 %
Backus' dis 50 %
Spofford's dis 40 %
Amidon dis 45 %
Brass Faucets.—L. F. & C. dis 25 %
Butts.—Union Drilled Loose Joint dis 60&10 %
" " Wire Fast Joint dis 55 %
" " Acorn Loose Joint dis 60&10 %
Brass Butts dis 30 %
Wrought Table Butts and Back Flaps dis 30 %
Wrought Narrow Butts dis 30 %
Can Openers—Sprague's dis 50 %
No. 1, Iron Handle $4 00
No. 2, Wood Handle 4 50
Cartridges.—"U. S. Cartridge Co." dis 50&10 %
Chisels.—"Buck Bros.' Shank Goods" add 20 @ 22½ %
Sockets add 22½ @ 25 %
Coal Hods dis 35 %
Fancy Japanned, No. 4, 15 in., $8 00; 5, 16 in., $9 00; 6, 17 in., $10 00.
Fancy Galvanized, No. 4, 15 in., $11 50; 5, 16 in., $13 00; 6, 17 in., $14 00.
Perfection, Jap'd, No. 4, 15 in., $12 00; 5, 16 in., $13 00; 6, 17 in., $14 00.
Perfection, Galv'd, No. 4, 15 in., $15 00; 5, 16 in., $16 00; 6, 17 in., $17 00.
Morning Glory, Jap'd, No. 4, 15 in., $12 00; 5, 16 in., $13 00; 6, 17 in., $14 00.
Morning Glory, Galv'd, No. 4, 15 in., $15 00; No. 5, 16 in., $16 00; No. 6, 17 in., $17 00.
Compasses and Dividers.—Bemis' dis 35 %
P. S. & W dis 25 %
Cordage.—Manila (usual trade dis.) ₩ lb, 15c
American Tarred Hemp Lath Yarn ₩ lb, 10c
Corn Hooks per doz $2 75
Cow Ties dis 10 %
No. 30, Open Ring, 3 foot, No. 6, with Toggle $3 70
No. 35, " 3 " No. 6, " Snap 3 90
No. 40, " 3½ " No. 5, " Toggle 4 23
No. 45, " 3½ " No. 5, " Snap 4 40
No. 50, " 4 " No. 4, " Toggle 4 85
No. 55, " 4 " No. 6, " Snap 5 00
No. 60, " 4½ " No. 3, " Toggle 5 60
No. 65, " 4½ " No. 3, " Snap 5 80
Crow Bars.—Iron. Steel Points ₩ lb, 5½c
"Sweet" Steel Bars ₩ lb 11c
Brown's Steel Bars ₩ lb 10c
K. P. & Co. Extra Drill Steel ₩ lb 15c
Dividers.—Cook's Nickel Plated dis 15 %
Door Springs.—Stimson's Patent.—
No. 7, Light inside doors, $12 00 dis 25 %
No. 8, " outside " $18 00 dis 25 %
Torrey's $4 00
Emery.—Alden ₩ lb 6½c
Wellington Mills ₩ lb 10c
Files.—Earl Smith & Co.'s English $5 to £ gold
American $5 to £ currency, less 12½ %
Nicholson $5 to £ currency, less 1½ %
" Regular Taper dis 12½&2½ %
Stubb's Tapers, genuine, 3 in., $1 50; 3½, $1 62; 4, $1 88; 4½, $2 13; 5, $2 50.
Funnel Irons.—$2 50 2 50 2 50 3 25 per doz
5, 5½, 6, 7 inch.
Deep Flange.—$3 50 3 75 4 00
5, 5¾, 6 inch.
Hammers.—Maydole dis 5 %
M., B. & D., solid cast steel, adze eye, No. 1, $10; 1½, $7 75
" " " " bell face, No. 1, $11; 1½, $9 75.
Hangers & Rollers.—Novelty dis 30 %
Anti-Friction $1 25 per pair—dis 30 %
Hatchets.—Underhill Edge Tool Co. dis 15 %
C. F. Dewey, warranted Cast Steel—
Shingling 0, $4 75; 1, $5 25; 2, $5 75
Claw 1, 5 75; 2, 6 25
Lathing 45 50
Axe Pattern 1, $7 00; 2, 7 50
Broad 0, $5 75; 1, $6 50; 2, $7 50; 3, $9 25; 4, $10 75; 5, $12 75; 6, $14 75.
Hinges.—Strap and T, Stanley Works dis 33½ %
Plate, Loose and Fast Joint ₩ lb 75c
Wrought Screw Hook ₩ lb 9c
Hoes.—Ely Baleh & Co. M., B. & D.'s list, 1874 dis 25 %
Remington, M., B. & D.'s list, 1874 dis 30 %
Lanterns.—Tubular No. 0 ₩ 50
Guarded. No. 7, (with kerosene oil and candle burners) 6 25
Lead.—Sheet and Pipe 9c—less 10 %
Locks.—P. & F. Corbin new list dis 45&5 %
Nashua dis 45&5 %
Manure Forks.—
Myers & Ervien, M., B. & D.'s list, 1874 dis 25 %
Peck, Clark & Co., " " " dis 25 %
Shumway & Co., " " " dis 30 %
Mattocks.—K. P. & Co., axe finish, long cutter, $13 75
Short cutter 13 50
Meat Cutters.—"Miles's" Challenge dis. 30 %
No. 1, $22 00; 2, $30 00; 3, $40 00.
Metal.—Babbitt. No. 1, 35c; 2, 25c; 3, 16c; 4, 15c ₩ lb
Nails.—10d and larger unsettled
Nail Pullers.—Little Giant—Small per doz., $22 00
Little Giant—Large " 30 00
Padlocks.—Wilcox dis 50&2 %
All Brass, 2½ inch, 2 keys, job lot $9 00
Picks.—K. P. & Co., Polished Points—
5 to 6 per doz $9 00; 6 to 7, $9 50
Pins.—Universal Hat and Coat all wood—
2 in. ₩ gross $2 50; 3 in., 3 50; 4 in., 4 50—dis 15 %
Potato Digger,—
"Partridge," 6 square tine ₩ doz $12 00
Shumway & Co., 6 round tine ₩ doz 9 00
Pulley Blocks.—"Best Boston Make" net
Common Strapped Blocks—

	4	5	6	7 inch.
Single,	75c.	88c.	$1 00	$1 13 each.
Double,	1 00	1 12	1 25	1 60 "

Inside Iron Strapped Blocks—

	5	6	7	8	9	10 inch.
Single,	$1 00	1 12	1 38	2 00	2 25	1 75 each.
Double,	1 88	1 50	2 63	3 63	4 00	5 00 "

Inside Iron Strapped Blocks, with Patent Roller Bushings—

	5	6	7	8	9	10 inch.
Single,	$1 25	1 50	1 65	2 20	2 65	3 50 each.
Double,	2 50	3 00	3 38	4 63	5 00	6 50 "

Plated Ware.—Rogers bros. new list dis 40&10 %
Plumb & Levels.—"Davis" Pat. Adjustable—
No. 1, Iron and Wood Center Levels dis 50 %
No. 2, First Quality Levels dis 60&10 %
No. 3, Iron Pocket " dis 35 %
No. 4, Level and Plumb Glasses dis 60&10 %
No. 5, Iron Pocket Levels, per square and straight edge dis 50&10 %
No. 6, Improved Iron Bench Planes dis 20&10 %
Pocket Knives.—Conn. Cutlery Co. new net list
American Shear Co. dis 33⅓ %
Rakes.—Cast Steel, garden dis 30 %
Malleable dis 25 %
Rail Barn Door.—For Novelty and Anti-Friction Hangers per foot 7c., dis 30 %
Rivets.—Black dis 25 %
Carriage, oval head, Nos. 3, 4, 5, 6, 7, 8, 13 13 14 14 15 16c ₩ lb net
Rubber Moldings.—"Harmon's" dis 10 %
No. 2, for Windows per foot, 5c
No. 3, for Doors per foot, 10c
No. 4, " per foot, 12c
Sad Irons.—Bliss & Drake ₩ lb 4
Sand Paper—0 to 2, $4 25; 2 to 3, $4 75 dis 10 %
Saws.—*Hand and Panel*—
Wheeler, Madden & Clemson's, same list as "Diston's" dis. 15 %
Diston's dis. 12½ %
Cross Cut—
Wheeler, Madden & Clemson X Cuts per ft., 87c
" " " "Star" X Cuts. " 60c
" " " Champion X Cut. " 50c
" " " One Man X Cut each, $2 25
Boynton's genuine Lightning X Cut per ft., 60c
" " " One Man X Cut each, $2 25
Circular—Wheeler, Madden & Clemson's dis. 25 %
Mill— " " dis. 25 %
Screws.—American Screw Co. revised list dis 52½ %
Scythe Stones.—
"Willoughby Lake," first quality ₩ gross $6 50
" second quality " 3 00
Shovels.—O. Ames new list dis 12½ %
M. B. & D. new list dis 12½ %
Snow, Malleable Iron Tip, D Handle—Agents for New England $6 50
Snow, Malleable Iron Tip, long Handle—Agents for New England 5 50
Sifters.—Coal, Rice, &c. $12 00
Spading Forks.—M. & E. dis 25 %
Stone Pickers.—"Partridge," original ₩ doz $15 00
Tools.—Aiken's Pattern, 20 in set; Parr's, $8 00 per doz
Traps.—Oneida dis 20&5 %
Blake's dis 50 %
Vises.—K. F. & Co.'s Solid Box, Blacksmith ₩ lb 13c
Parker's Parallel dis 10 %
Backus dis 25 %
"Howards." Parallel dis 20 %
Wardrobe Hooks.—Wire to drive ₩ gross $1 00
Weather Strips.—"Harmon's" per doz $5, dis 10 %
Weights.—Window Weights ₩ lb 2½c
Wire Netting.—Clinton Wire Cloth Co., Green, Drab or Black ₩ ft 6c
Wrenches.—Genuine Wrenches, A. G. Coes dis 40&5 %
Wringers.—
Novelty and Universal } Tub No. 2 } market unsettled
Eureka per doz $60 00
Novelty Bench, No. 4 market unsettled

Boston Metal Market.

(Corrected by Fuller, Dana & Fitz.)

Tin Plates.—₩ box		**Copper.**—	₩ lb
I. C. Char. 10x14 @	$11 50	Sheathing	33c
I. C. Coke 10x14	9 50	Bolts	33c
Char. Roof, IC, 14x20	11 25	Pot	33c
Coke " IC, 14x20	10 25	**Lead.**—	₩ lb
Pig Tin.—	₩ lb	Pig	6½c
Banca	30c	Sheet & Pipe, 8c, dis 10 %	
Straits	25c	**Spelter**	₩ lb 8c
English	24c	**Antimony**	₩ lb 14c
Zinc.—Sheet	₩ lb 10c		
Iron.—Sheet Iron, Russia			18c
Sheet Iron, English			5 c
" " American Refined			5½c
" " Galvanized			10c
Plate Iron			3½c
Swedish and Norway Bar Iron, gold		₩ ton,	$120 00
" " Shapes, gold			125 00
Norway Nail Rods, first quality, gold			145 00
" " " second " "			135 00
Best Refined Bar Iron			65 00
The "Burden Best" Iron			95 00
American Pig Iron, Foundry, No. 1, x			33 00
" " No. 2, x			31 00
" " Gray Forge			28 00
Scotch Pig Iron		₩ ton 36 00 @	39 00
Wrought Scrap Iron			36 00
Steel.—	₩ lb	German	10c
Eng. Tool	18c	Spring	7½c
American Tool	14½c	Tire	6½c
" Mach	10c	Sleigh Shoe	4½c
Bessemer	7½c	Toe Calk	7½c

ST. LOUIS.

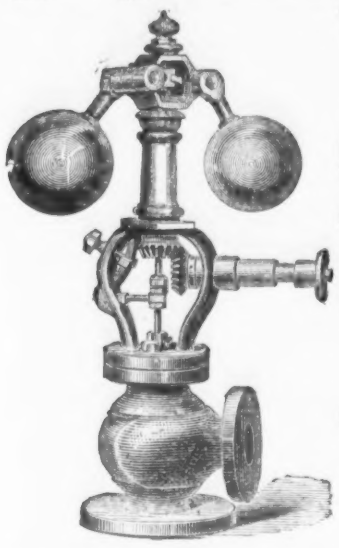
Corrected weekly by Semple, Birge & Co

Anvils.—Armitage	₩ lb, gold, 18c
Peter Wright's	" 14c
Wilkinson's	" 12½c
Apple Parers.—Conqueror	₩ doz, $9 00
Lightning	9 00
Turn Table	9 00
Axes.—Hunt's	₩ doz $13 00 @ 18 50
Lippincott's	" 12 00 @ 13 00
Lippincott's Pioneer	13 00 @ 13 50
Simmons'	" 12 00 @ 15 00
Axles.—Kritch & Crane Mfg. Co.'s—	
Patent Taper Axles	new list net
Swelled Taper Axles	new list net
Concord Axles	new list net
Red Jacket Axles	new list net
Common Axles, 1¼ inch and upward	₩ lb 3½c
" " less than 1¼ inch	" 3½c
Bellows.—"Best St. Louis make" 60c	₩ m. dis 20 %
Bells.—Troy, Church	₩ lb, 4c
Light Brass Hand	dis 20 %
Moore's, Cow	dis 20 %
Bolts.—Arms, Bell & Co.'s Machine	dis 20 %
Arms, Bell & Co.'s Carriage and Tire	dis 25 %
Cast Butt Hinges.—Western Butt Co.'s—	
Narrow Fast Joint	dis 35 %
Broad Fast Joint	dis 50 %
" Loose "	dis 50 %
Reversible	dis 50 %
" Japanned and Silver Tipped	dis 10&5 %
Loose Joint "Acorn" " "	dis 50 %
Lull & Porter's Blind	dis 55 %
Wrought Butts.—Narrow	dis 50 %
Reversible	dis 45 %
Broad	dis 30 %
Chain.—Eng. Coil 3-16 ¼ 5-16 ⅜ 7-16 ½ in.	dis 30 %
15 11 10 9½ 9 8c	gold
Trace 6½-10-2	65c "
7-10-2	70c "
German Coil and Halter	revised list add 10 %
Chisels.—Socket, Firmer or Framing	dis 60 %
Clothes Wringers.—Crown	₩ doz $60 00
Novelty	69 00
Universal	69 00
Monitor	69 00
Corn Cutters or Hooks.—Solid Steel	₩ doz $4 00
Corn Knives.—Dunn Edge Tool Co.'s Clip	₩ doz $5 75
Diston's	" 6 00
Crow Bars.—Steel Pointed	₩ lb 7c
Cutlery.—J. Russell & Co.'s—	
Lamson, Goodnow & Co.'s	at minimum list, net
Landers, Frary & Clark's	
Files and Rasps.—Nicholson's Files	$5 00 less 10 %
Butcher's Mill	$6 75
Heller's & Bros Horse Rasps	dis 40 %
Forks and Hoes.—	
Auburn Mfg. Co.'s Hay and Manure Forks	dis 30 %
" " Handled Hoes	dis 30 %
" " Planter Eye Hoes	dis 30 %
Winsted's Planter Eye Hoes	add 10 %
Hammers.—Yerkes & Plumb	add 10 %
Masons' Hammers	dis 5 %
Smith Hand Hammers	₩ lb 20c
Handles.—Axe Extra. $2 75 No. 1. $2 25 No. 2. $1 75 No. 3, $1 00	
Pick Extra. $2 50 No. 1. $2 00 No. 1½ $1 75 No. 2 $1 25	
Smith & Montross Fork, Hoe and Rake	dis 20 %
Harrow Teeth.—1 inch Iron	₩ lb 4½c
⅞ and ¾ inch Iron	" 4¾c
⅝ inch Iron	" 5
Barbed or Headed	½c extra
Simmons'	dis 10 %
Hatchets.—Hunt's	dis 15 %
Simmons'	dis 15 %
Hay Knives.—Lightning	₩ doz $30 00
Dunn Edge Tool Co.'s	₩ doz $14 50—dis 15 %
Fisher's "	16 50—dis 15 %
Hinges.—Strap and T—St. Louis make	dis 25&10 %
Horse Nails.—Ausable	22c rate
Northwestern	22c "
National Patent Pointed	21c "
" " Extra Finished	22c "
Horse Shoes.—R. I. (Perkins & Co.'s)	₩ keg $6 25
Burden's	" 6 25
Mule Shoes	" 7 50
Rhode Island Trotting Shoes	" 9 00
Locks and Latches.—	
Jones & Nimick's	revised list dis 40 %
Moorhead, Adams & Co.	revised list dis 40 %
Norwalk Lock Co.'s	revised list dis 40 %
Mattocks and Grub Hoes.	
Klein, Logan & Co.'s Mattocks	₩ doz. $14 75 @ 15 25
" Grub Hoes, Oval Eye	₩ doz. 10 75 @ 11 00
Nails.—Wheeling	$3 75 rates
Orders for 100 kegs 10c ₩ keg less.	
Picks.—Klein, Logan & Co.'s H. H. and Clay	₩ doz. $11 00
Klein, Logan & Co.'s Coal	" 8 50
" " Poll	" 11 00
" " Stone	" 14 50
" " Tamping	" 17 00
Planes.—Ohio Tool Co.'s	dis 35 %
Sciota	dis 35 %
Post Hole Augers.—Clark's Patent—	
No. 1, ₩ doz. $27; No. 2, $30; No. 3, $32	dis 30 %
Barton's Patent	₩ doz $25—dis 20 %
Vaughn's "	" 25—dis 10 %
Sad Irons.—Monitor Brand, Silver Polished	₩ lb 4c
Sash Weights.—Standard Solid Eyes	₩ lb 3½c
Saws.—Diston's	dis 10 %
Hubbard, Lippincott, B. & Co.'s	dis 10 %
Branch, Crooks & Co.'s	dis 15 %
Livingston's Patent Buck	dis 15 %
Screws.—American Screw Co.'s revised list	net list
Scythes.—Dunn Edge Tool Co.'s	new list dis 25 %
Paris Furnace Co.'s	dis 30 %
Scythe Stones.—No. 1 Ind'n Pond	₩ gr's, $7 00
Extra Indian Pond	" 7 50
Premium	" 9 50
Diamond Grit	" 13 50
Shovels, Spades and Scoops.—	dis 35 %
Ames'	dis 35 %
Lippincott's	dis 30 %
Rowland's Maxwell	revised list dis 15 %
Sledges.—Smith's Stone or Coal Sledges—	
Steel Face Polished	₩ lb, 15c
Solid Cast Steel	" 25c
Spaths and Cradles.—Seymour Mfg. Co.'s	dis 20 %
Springs.—Cleveland Spring Co.'s—	
Carriage and Express	dis 10 %
Blue Seat Springs	new list dis 15 %
Tacks.—Norway Tack Co.'s ¾ weight	dis 72½ %
Brads ½ weight	dis 50 %
Thimble Skeins.—Pump & Skein Co.'s	dis 60 %
Traps.—Newhouse Patent	dis 15 %
Vises.—Solid Box	₩ lb 18c
Wilson Mfg. Co.'s	dis 15 %
Wrenches.—Coes' Genuine	dis 33⅓ %
Coes' Pattern	dis 40 %
Taft's	dis 40 %

St. Louis Metal Market.

(Corrected Weekly by Messrs. R. Sellew & Co.)

Tin Plate.			
IC, 10x14, Char	$11 00@11 50	IX, continuous, 20 in. x 200 ft.	
IX, 10x14, "	14 00	IC, 10x14, best	
IC, 12x12, "	12 00	Coke	$8 00
IX, 12x12, "	14 50	IC, 10x14, good	
IC, 14x20, "	12 50	Coke	10 00
IX, 14x20, "	15 00	IC, 10x20	17 00
IC, 14x20, Terne	$10 75@11 00	IX, 10x20	19 00
IX, 14x20, "	13 50	IC, 14x20, Coke Lead	8 00
IC, 20x28, "	21 00@22 00	IX, 20x28	25 00
IX, 20x28, "	25 00@26 00	IC, 10x14, punch'd for Safes	10 00
IC, continuous, 20 in. x 200 ft.			
Block Tin.			
Large Pigs	32c	Straits	28c
Small "	27c	English	30c
Bars	30c		
Sheet Zinc.			
Casks	₩ lb 10c	Sheet	₩ lb 10½c
Solder.			
No. 1, Refined, in bars or plate			21c
No. 2, " " "			18c
Pig Lead			7½c
Sheet Copper.—18 to 100 lbs. Sheets 30x60			32c
14 to 16 lbs., Sheets 30x60			32c
10 to 12 lbs., " and 30x72			32c
6 to 9 lbs., "			33c
Tinned, 14 and 16 oz. 14x48			41c
Planished, 14 and 16 oz. 14x48			47c
" No. 7, 8 and 9			49c
Copper Bottoms			60c
Sheet Iron.—	Com'n.	Sm'th.	Char'l.	Juniata.
No. 16 to 20	4¾c	5¾c	7¾c	9¾c
No. 22 to 24	4¾c	5¾c	7¾c	9¾c
No. 26	5 c	6 c	8 c	9¾c
No. 27	5¼c	6¼c	8¼c	10c
Galvanized Iron				dis 30 %
Iron Rivets				dis 35 %
Iron Wire				dis 35 %
Coppered Market Wire				dis 20 %
Copper Rivets and Burs				dis 35 %
Russia Iron.—Nos. 9, 10, 11 and 12.				₩ lb 20c
No. 1 stained, ₩ lb				12c
Imitation Russia, ₩ lb				10c
Retinned Stamped Ware				dis 30 %



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ALSO,

SHIVE'S PATENT WATCHMAN'S CLOCK AND DETECTOR.

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The Pratt & Whitney Co.,

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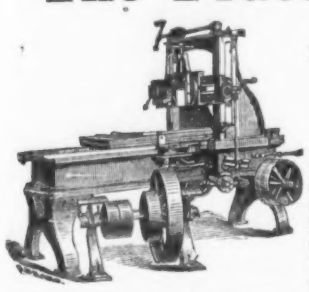
Have constantly on hand and making



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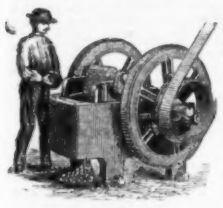
STONE & ORE BREAKER.

New Pattern with Important Improvements & Abundant Strength



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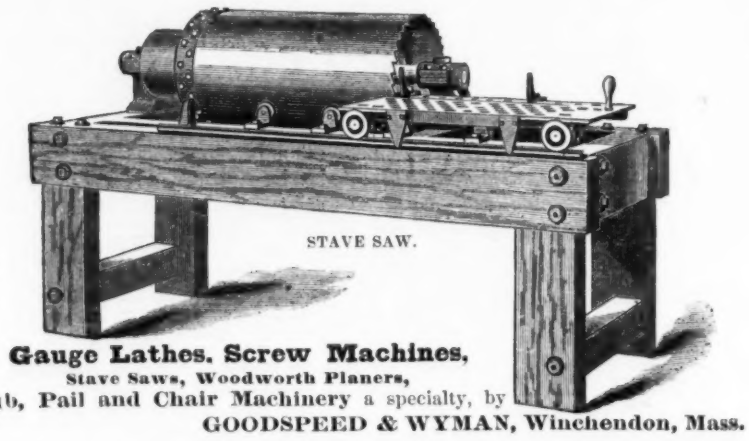

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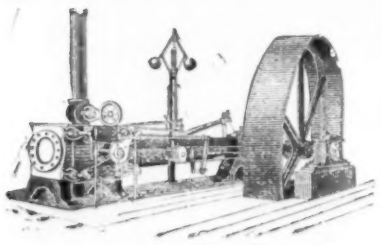

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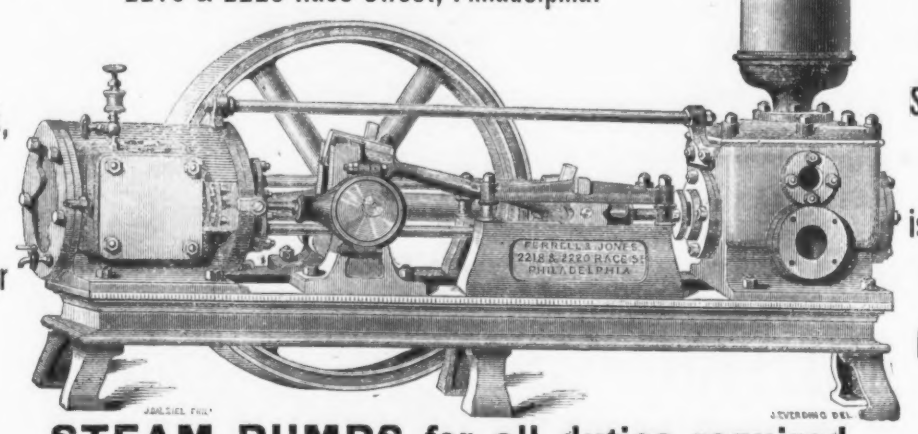

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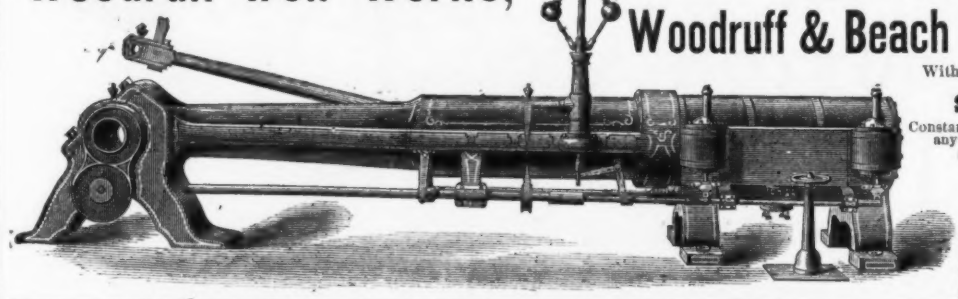

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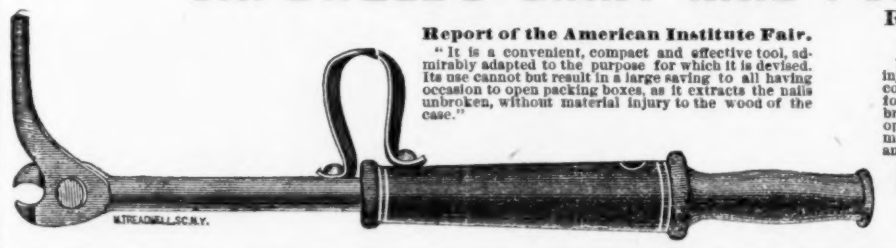

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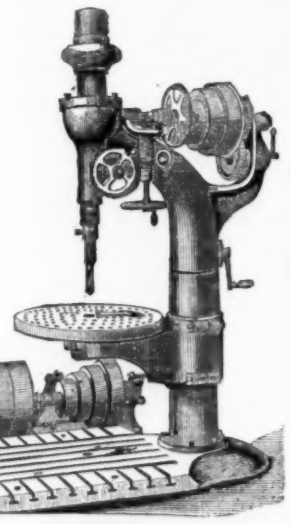

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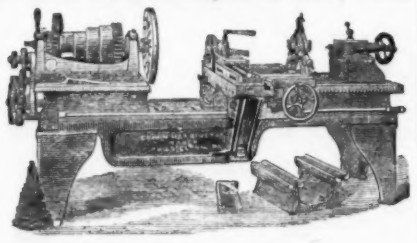

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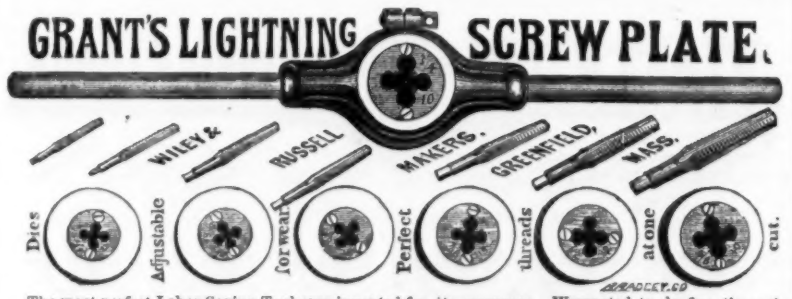

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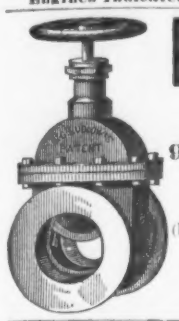

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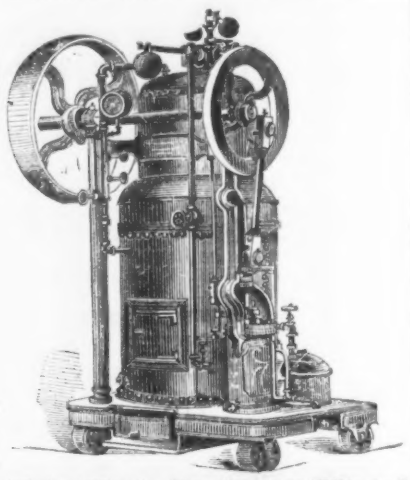

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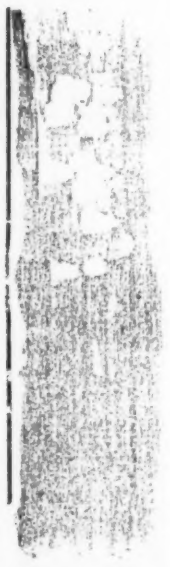

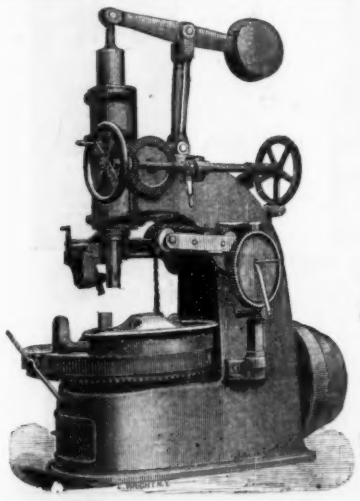

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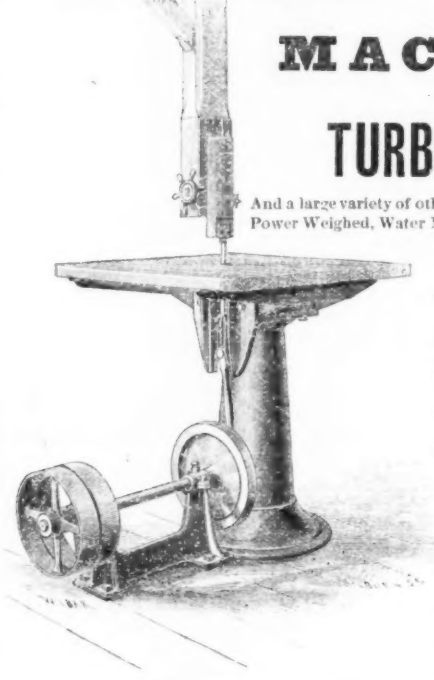

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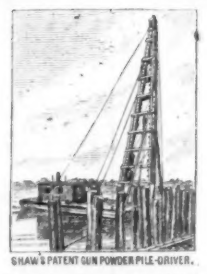

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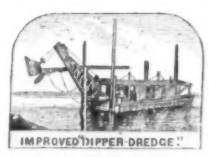

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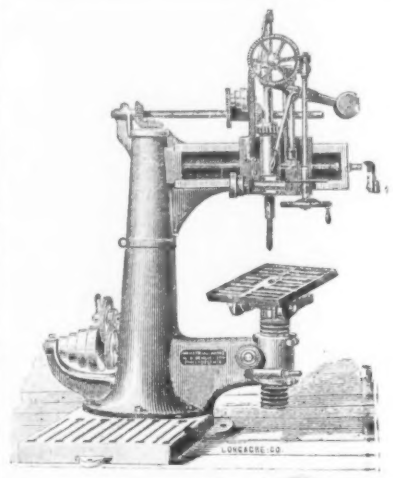

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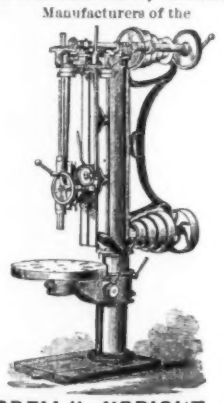

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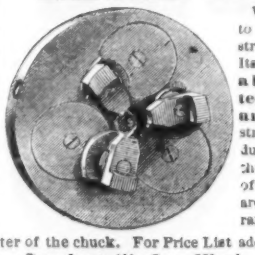

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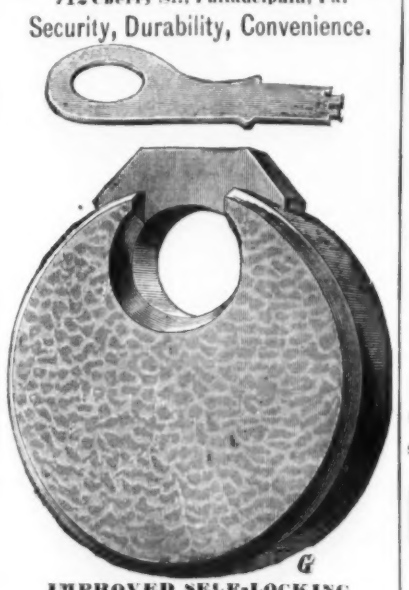

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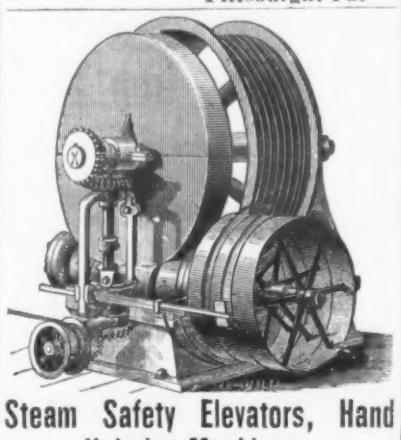

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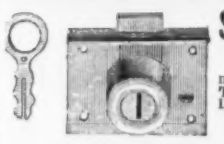

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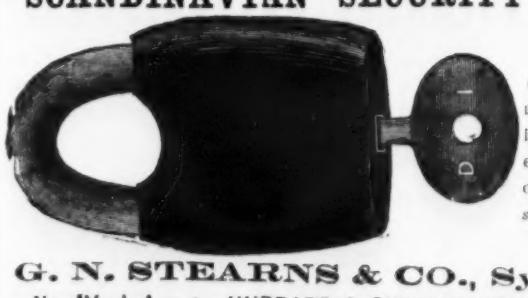

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